

Home Computing WEEKLY

Argus Specialist Publication

July 26-August 1, 1983

No. 21

38p

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VIC-20,
TI-99/4A,
Spectrum, ZX81
and Dragon

Software reviews for:
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Oric, TI-99/4A,
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Commodore 64,
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Tips on programming your Atari

GIRLS MICROS ARE FOR YOU, AS WELL

SOFTWARE companies and teachers are fighting to remove the "boys-only" tag from computing.

Two new reports highlight the fact that few girls use computers, at home or at school. And the same applies to their mothers.

A survey by Audits of Great Britain shows that boys are 13 times more likely than girls to use the home computer. And just four percent of girls and mothers use them.

AGB's Peter Snell believes the imbalance will fade as software more suited to girls and women is produced.

And education advisor Brian Steven has just produced a report on schools in Sheffield which shows that for every nine boys only one girl takes up computing — an improvement on the 11-to-one ratio of two years ago.

His education authority is going to the Equal Opportunities Commission for cash to finance a year-long study in a primary school.

He said: "We propose to saturate a primary school with computer equipment and have a full-time teacher who is knowledgeable on computers to ensure that the opportunities are evenly spread.

"We hope that by positive discrimination that we can produce courses which are as interesting to girls as they are to boys."

Mr Steven, who has his own Spectrum, said: "Boys tend to push girls out of the way — they take a fairly aggressive attitude."

If his authority's submission was successful, the EOC would pay the teacher's salary and there would be a written report circulated.

He believed the problem was the same as with science subjects and based on the attitudes of parents, job expectations and social background. Parents

thought it was a boy's subject and that exam passes would lead to the better-paid jobs.

Mr Steven said: "There are supposed to be 40,000 jobs in computing but school leavers have difficulty finding where they are."

Commodore's software manager Gail Wellington said she is tackling the problem with more programs designed to appeal to women and girls.

Mrs Wellington, who comes from Boston, said: "I don't think the problem is as severe in the

States as it is here. Science subjects are given short shrift in favour of more classical education, particularly for women. There are not, for example, as many women engineers.

"Computing is a natural for women as it needs a rational mind and intuition and is not physical.

"We as software manufacturers have neglected programs which would appeal to women, and especially to female children.

"Having said that, I have a problem trying to do something

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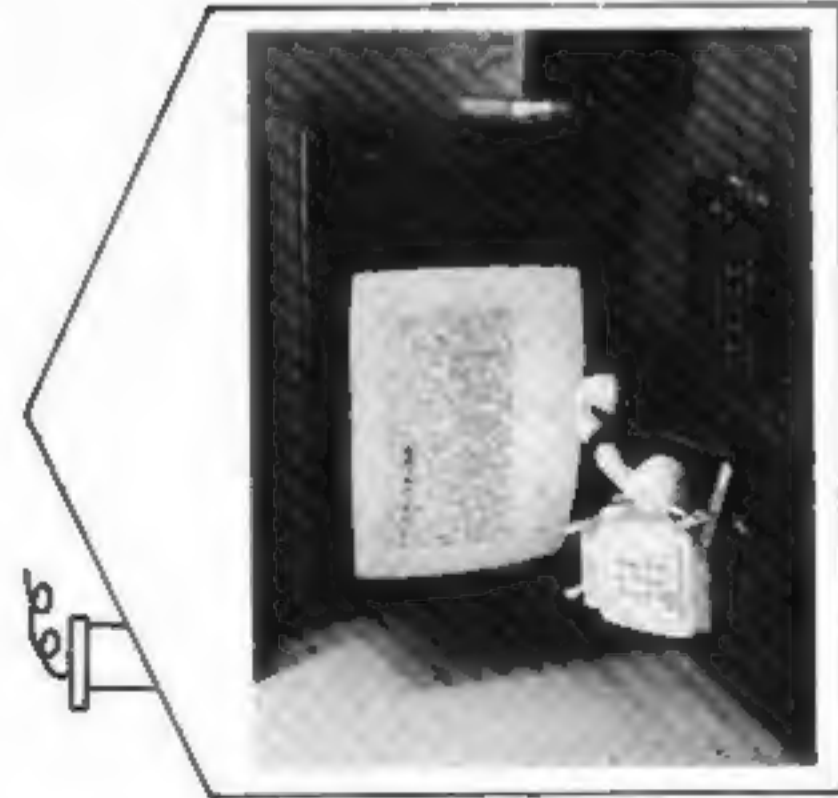
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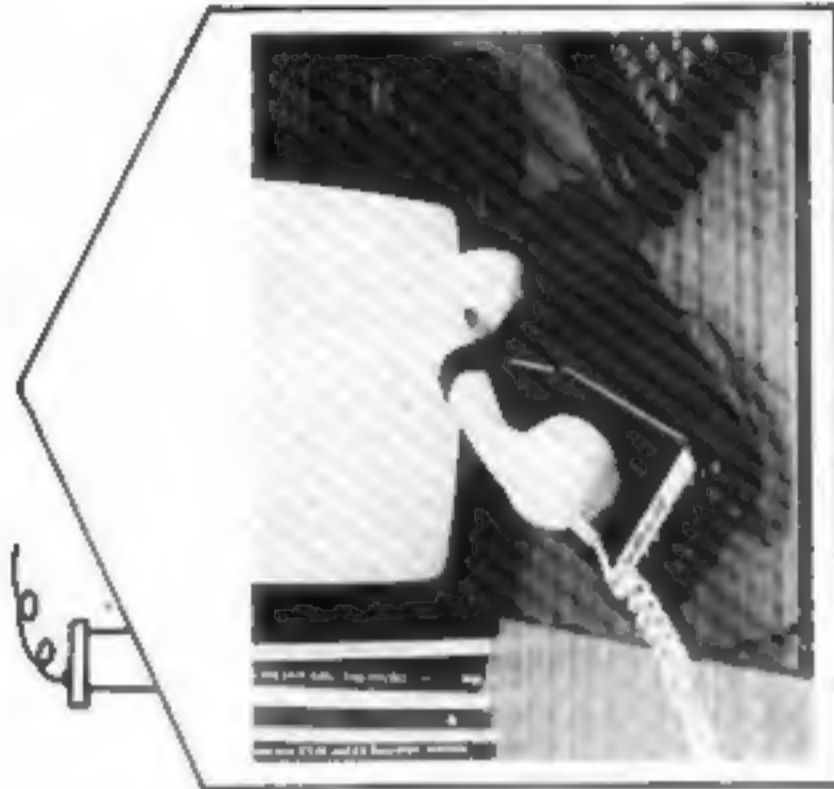
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Continued from front page

different from shoot-'em-up games. Which comes first, the chicken or the egg?

"We are working on programs which are not in the traditional violent masculine image. We have one on the way called Butterfly Catcher and there will be some others in the same vein using a fairytale scenario.

"I've had to insist at times and I've had to sell the idea."

Mrs Wellington, mother of two sons, heads a team of 12 technical staff at Commodore's Slough headquarters — four are women.

National statistics show four times as many boys than girls take GCSEs at A-level in computer science.

Gloria Callaway is head of a 180-pupil Hackney junior school as well as a programmer for educational software house ASK.

She said: "When our school computer is delivered girls will be very much encouraged and the time will be split."

Heather Lamont, partner in Rabbit Software, said: "The girls should say: 'It's my computer as well.' After all, the computer is usually bought for the family.

"The biggest thing girls must learn is not to be frightened of computers, they are not as difficult as they think."

Miss Lamont, 22, spoke of her schooldays: "When I was in the physics class there was only me and one other girl. And it was the same with chemistry."

"When I first started in sales with a computer firm there was a lot of comment. They did not think I would last long. I don't think they thought women were quite as level headed. It's quite the reverse."

Cheaper graphics

Salamander has cut the price of its EDG Graphics Package for the BBC B. The new prices are £20 for the tape based version and £25 for the disc — a reduction of £5 in each case.

Owners of the tape package can upgrade to disc for £11.50 if they return their packages to Salamander.

Salamander Software, 17 Norfolk Road, Brighton, East Sussex BN1 4AA

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SOFTWARE SUPERMARKET

Microdrives revealed

Sinclair's microdrives, due out soon, will run endless loop tape cartridges costing under £5 each.

As the long-awaited launch approaches, software companies are preparing to market sophisticated programs making use of the 3½ sec access time and up to 100K of storage.

Microdrives themselves will cost about £40, and up to eight can be linked. Users will also need an interface unit, at around £30, which will offer networking as well as the industry standard RS-232 interface which lets other peripherals work with the Spectrum.

It will, however, be some months before these new products are in the shops. Sinclair Research's managing director Nigel Searle said they would first be offered to customers on the company's mailing list.

And when the list was exhausted, the first batches for shop sale will probably go to W.H.Smith.

The wedge-shaped ZX interface 1 fits under the Spectrum, tilting it forward.

The Microdrives are similar to the units which have appeared in Sinclair adverts, and measure 3½ in by 3 in by 2 in.

And the tape cartridges are 1½ in by one and an eighth inches by just three sixteenths of an inch. The tape inside is just over 17ft long and a sixteenth of an inch wide.

Stewart Binnie, merchandise controller for W.H.Smith, said, "We are very excited about the product and we will certainly take the bulk of sales. But we don't yet know when to expect them."

Already add-on makers are anxiously trying to get samples of the Microdrives to see how they can link them to other best-selling computers.

HAVE YOU BEEN INVOLVED IN A MYSTERIOUS ADVENTURE RECENTLY?

If so, it is quite probable that you are presently suffering from TIS, more commonly known as Total Involvement Syndrome.

TIS manifests itself in a number of ways, one of the most dramatic symptoms being a victim's complete inability to feel at ease in the world of reality. Other symptoms include insomnia, a desperate need to play a Mysterious Adventure, and an overwhelming sense of acute enjoyment.

Experts believe that TIS is usually contracted as a result of prolonged exposure to Mysterious Adventures, this is commonly caused by owning any of the following Home Computers:-

48K SPECTRUM, BBC MODEL A OR B, TRS80, COLOUR GENIE, ATARI 400/800, COMMODORE 64, DRAGON 32K, 16K, ZX81, LYNX etc.

When questioned about this epidemic, a representative of DIGITAL FANTASIA, a company who are actively involved in research and development work on Mysterious Adventures said, "There is probably no cure for TIS other than mains failure, faulty RAM chips etc. which can be at best only a Temporary solution". "In the absence of a more permanent cure, I would advise TIS sufferers to submit to the Syndrome and obtain Mysterious Adventures from any sources available to them". "TIS is highly contagious and in view of the current Worldwide Epidemic, I would say enjoy it while you can, resistance is futile".

If you have a BBC Computer or a 48K SPECTRUM, you can obtain Mysterious Adventures direct from DIGITAL FANTASIA in any of the following dosages:-

- | | | |
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Following in the cinematic footsteps of *Tron* is *Wargames*, a film about a boy computer genius who finds himself trying to stop the countdown to a global thermonuclear war. And there you were worrying about RAM pack wobble.

David Lightman, *Wargames*' hero, is a failure at school. But when he sits down at the keyboard... he can change his school grades, and cheat the phone company.

One day he happens to key into the US Air Force Command Centre computer, only to find that world destruction is imminent. Can he win his chilling race against time?

The answer is probably yes. But you can make sure when *Wargames* — directed by the man who made *Saturday Night Fever* — opens in London on August 18, at the Leicester Square Odeon. If you live out of London, you'll have to hang on for the nationwide release nine weeks later.

Alternatively, you can read the film of the book, rushed out by Penguin and Puffin to coincide with the launch. Described as a "nailbiting novel" (wasn't it supposed to be about computers?), it costs £1.75 for the Penguin or, for younger readers, the Puffin costs £1.50.

Penguin Books, 536 Kings Road, London SW10 0UH

Spectrums: 4 in court

Four people, including a teenage girl and boy, have faced magistrates following a warehouse raid which netted Spectrums worth £390,000.

They face charges of handling stolen property and all were remanded to a further hearing, two of them in custody.

The robbery took place three weeks ago at the TNT warehouse, on the Cranford Lane Industrial Estate, Hornsey, and the computers belonged to the distribution company, Prism.

A girl car driver, with a male passenger, faked a crash to lure the security guard and the estate manager from the warehouse then two other raiders appeared armed with a shotgun and handgun.

The car drove off at high speed as the rest of the gang trapped the two men in the back of a lorry and loaded up two other TNT lorries with computers, mostly 48K Spectrums in boxes of 10, plus ZX81s and some software.

Later 13 Spectrums, a ZX81 and a single power pack were found, ruined, in the Thames.



One way to shelve your micro

Computer cabinet

It must be a sign of the times. People used to have cocktail cabinets — now the cabinets house computers instead.

Marcol Trading has designed a cabinet to hold not only your computer, tape recorder and printer, but your video recorder as well, on two shelves which slide out to form a desk and slide back when you don't need them.

Underneath, there's storage space for essentials like cassettes, books, listings, joysticks and copies of *Home Computing Weekly*.

The cabinet has a genuine teak-effect finish, and arrives packed flat — you bolt in together yourself. It costs £95 including delivery.

Marcol, 8 Bugle Street, Southampton SO1 0AJ

Computer competition

Buy a tub of ice cream and win computers and software. Bug Byte, Lyons Maid and Cordon Bleu freezer centres have got together to run a competition offering a Spectrum, ZX81, software and nine other prizes. Closing date is August 15.

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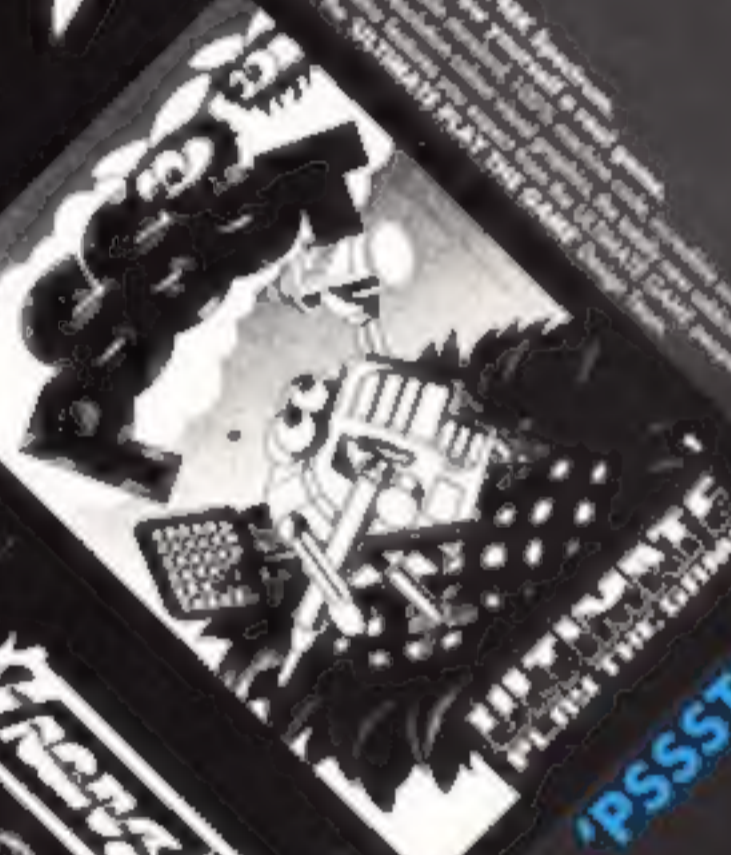


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Newest — is it really always best?

As time goes by, I grow more and more convinced that the microcomputer industry has gone mad.

Almost every week now you hear of incredible new micros being launched, or "coming soon" and, to the compu-freak, it doesn't really matter that every time he rings the despatch department he is told his computer will be coming next week, and next week, and next week because it is new.

New! New! New! The advertising man's magic word! If something is new, some poor idiot is sure to buy it. Computers are now the latest craze, like skateboards, deely-boppers and the rest, and it's quite likely that fourth-former Joe Bloggs wants a computer just because his best friend has one, not because he wants to further his horizons.

It would be extremely difficult for anyone to make a movie satirising the home computer industry because it's doing very well satirising itself. The letters page of almost any home computing magazine can be found bulging with letters praising the virtues of the ZXY Gargle-Blaster over the ABC Dingbat. Full page ads in the mags proclaim to the world that the Zappo 2 computer has a (hey wow!) "professional keyboard". In fact it has a keyboard where the letters aren't even on the keys they belong to and where the actual keys resemble individual molars from a set of false teeth, but it's still better than the ROYGBIV micro which has a keyboard which feels like dead leeches.

You may walk into your local branch of Grixohams and find out that the salespeople know about as much about their charges as the Neanderthal Man, and will tell you almost anything for their commission. Whatever happened to quality?

Almost every review has niggles about colour which ripples along the edges of the screen and characters which make you sea-sick, or screens which behave like demented kangaroos whenever a sound command is issued, or the computer with a CIRCLE command that draws ovals, or the cassette interface that gives so much trouble.

In the race to produce newer, brighter, more colourful and noisier micros, quality has been something that gets in the way.

In the future, perhaps, people will say that there was a saying: build a better mousetrap and the world will come flocking to your door. But in the mid '80s the phrase is "Write a better Pacman, and the world will come flocking to your door." Where are the really original software ideas?

Don't be deceived into thinking that just because a computer is new it is necessarily better than an older computer. I have owned the same computer for the last three years. It's a Microtan 65 system, and although now the company that makes it has changed from Tangerine to Microtan, the Microtan remains largely the same as it did three years ago when it too was new. My Microtan will last me quite some years yet, because it was made with quality and versatility in mind.

My Microtan may look a little old and grey besides today's brash cheap 'n' cheerful jobs, but an old Rolls Royce (or Bentley, or Jaguar) is better than a brand new Mini. If I want colour and sound then all I have to do is buy a board and plug it in, and the cassette interface is amazingly reliable.

My Old Faithful will probably outlast the Spectrum or the Oric, I've got hi-res graphics that would shame the BBC micro and, unlike some things which have in-built obsolescence, my old computer can and does allow for the future.

Newest, is decidedly not always best, and it takes a true individual to realise that. Here's to quality, OK?

Anthony John Shepherd
Freelance writer
Barnsley, Yorks



The incredible shrinking cassette recorder

Carry on recording

You can take portability a stage further with Olympus's new Pearlorder C100, a microcassette recorder specially designed for home computers.

The C100 measures about 5½ in by 2½ in by 1 in, and weighs 10.2 ounces including batteries. It will also run off the mains with an optional adaptor.

Features of particular interest to computer owners are a tape

counter, a pause button, and a phase reverse control.

As well as 60 min and 90 min micro cassettes, you can buy a special 30 min micro cassettes, though at £1.20 it's more pricey than standard-sized computer cassettes.

If you want to use the C100 for voice recording, there's a slower speed available which gives you twice as much recording time on each cassette.

The C100 costs £50-55. Olympus, 2-8 Honduras Street, London EC1Y 0TX

Sinclair is innocent

Perhaps micro firms are mending their ways. The latest batch of complaints received by the Advertising Standards Authority included only two that related to the home computer industry — and one of those proved to be unjustified.

Sinclair Research, which has been pulled up by the authority five times over the past year, was the innocent party this time. The authority got a complaint about an ad for the 16K Spectrum which said that "you can return it later for an upgrade".

A man complained that he had

sent his 16K Spectrum back to be upgraded only to find that the service wasn't yet available. But the authority agreed with Sinclair that the ad was not misleading.

But Control Technology, of Hyde, Cheshire, was caught out when a customer complained about its ad for a 16K RAM pack for the ZX81.

The ad said the pack included a program to predict the results of horse races and football pools — but the program had nothing to do with football, and didn't have much to do with horse racing either. The program is no longer being advertised.

Advertising Standards Authority, Brook House, Torrington Place, London WC1E 7HN

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Fifth for fast movers

Your Spectrum can work out your bank balance and move space invaders round the screen — at the same time.

That's the claim made by 15-year-old Richard Taylor, a Suffolk schoolboy, who has written a program called Fifth.

It is due out in about six weeks from CRL at about £10, including a 16,000-word manual.

Richard wrote CRL's Hi-Res graphics program for the ZX81.

Talking about his latest program, he said: "To write fast moving games BASIC's no good and machine code is too hard and takes too long for most people."

"Everyone will want Fifth because they can get fast-moving graphics with no fuss."

"It gives the Spectrum the power of parallel processing. My program could work out someone's bank balance while moving about a bunch of space invaders."

According to CRL, Richard's program adds 25 new commands, including GET, REPLACE, PUT, LARGE, SOUND, LET, ERASE, MOVE and RMOVE. It is said to have 155 speeds, 16 movement vectors and can produce characters or sprites of up to 22 by 32.

Fifth, cheekily titled after the so-called fifth generation of computers, is interrupt driven, so allowing apparent dual processing.

Clement Chambers, CRL's youthful managing director, said he had offered Richard a job for when he completes his education.

Mr Chambers said he would like Richard now to create a special BASIC for the Spectrum to make games programming simpler.

● CRL is sponsoring four teenagers who are building a micro-mouse to take part in a Europe-wide competition in Madrid in September.

CRL, 140 Whitechapel Road, London E1

Commodore's prices fall

Commodore has now officially announced the long-expected price cut for the Commodore 64. The cut is effective from August 1, and at the same time, prices of peripherals, memory expansion and games cartridges fall.

The 64 comes down to £229 from £345, though Commodore expects that some retail chains will be selling it for even less than that. Single floppy disc drives will cost the same — they currently cost £300.

For the VIC, 3K of RAM will drop to £20 from £30, 8K will be £30 instead of £50, and 16K will be £40 instead of £75.

But the most dramatic reduction is on games cartridges. From August they will be halved to £10 instead of £20 upwards.

Commodore, 875 Ajax Avenue, Slough, Berks

Learning goes home

Longman has already brought out a range of micro software for use in schools. Now it has put its head together with Micromega to bring out three educational programs which you can use at home. They're all for the Spectrum, and are meant for children aged four to eight.

A,b,c...lift off encourages children to match words to pictures by loading up a spaceship to Venus. Objects can only be loaded if they correspond to a word on the screen. When the spaceship is full, it takes off.

Countabout teaches addition and subtraction — get the answers right and a monkey climbs a tree.

And in The Hot Dot Spitter you count the dots to stop a ball before it can drop to the bottom of the screen.

The programs cost £7.95 each. Longman, Burnt Mill, Harlow, Essex CM20 2JE

Spectrum Joins up with Micronet

Four months after the launch of Micronet, the low-cost videotex service for home computer users, a Micronet adaptor has been developed for the Spectrum.

It's hard-wired modem, called the Prism VTX 5000, which fits under the Spectrum and connects it directly to the phone via a jack plug.

As well as acting as a modem, the VTX 5000 offers extra features. It allows full Prestel graphics to be created, and frames to be printed out using the


Sinclair printer. The VTX 5000 itself costs £100, and first supplies will go to Spectrum owners who have already sent in enquiries to Micronet. In addition, the jack plug connection (which must be carried out by British Telecom) costs £25.

But for the first couple of months at least, you can take advantage of a special offer of free jack plug installation.

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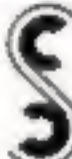
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ARTICLES on using home computers should be no longer than 2,000 words. Don't worry about your writing ability — just try to keep to the style in HCW. Articles most likely to be published will help our readers make better use of their micros by giving useful ideas, possibly with programming examples. We will convert any sketched illustrations into finished artwork.

TIPS are short articles, and brief programming routines which we can put together with others. Your hints can aid other computer users.

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Paul Uptrot, Home Computing Weekly, 145 Charing Cross Road, London WC2H 0EE

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Getting the bird

In Terror-Daktil 4D, Melbourne House's latest game for the 48K Spectrum, you're stranded in an alien land. Can you last out the six days until you're rescued, or will the ferocious Terror-Daktils get you first?

The program uses 3D graphics (the fourth dimension is time), and what Melbourne House describes as "a chillingly compelling theme tune". It was written by Alan Blake, who said: "I wanted the game to jump out of the screen".

The game took him five months to complete.

Alan's advice on playing Terror-Daktil is: "Try to keep alive for the first day at least if you're looking for a high score. It should be possible to score a million, but if you get between 10,000 and 20,000, I'd say you're doing extremely well."

Price: £6.95. Look out for a review of the game in a future



Alan Blake
issue of Home Computing Weekly.

Melbourne House, Glebe Cottage, Glebe House, Station Road, Cheddington, Leighton Buzzard, Beds LU7 7NA

Computer centre opens in Herts

Hemel Hempstead now has a new computer shop. Called The Hemel Computer Centre, it is selling Atari, Commodore, TI, Sharp and Dragon home micros, plus a range of software and peripherals.

Later on, it may move into business micros.

According to one of the directors, Steven McBride, good service will be the keynote of the new store.

He said: "We know that microcomputers are now available from many of the chain stores. But we feel our strength lies in the fact that we are a specialist shop, with the knowledge and experience to provide a more comprehensive service to the customer."

The Centre plans to offer service not only for its own machines, but those sold by other dealers in the area.

The Hemel Computer Centre, 52 High Street, Hemel Hempstead, Herts

Touch-sensitive issue?

This week's prize for the most bizarre way of modifying the ZX81's keyboard must go to The Improver, a small piece of cardboard which, its makers claim, enables you to raise an area over each key to give positive feedback when the key is pressed.

The Improver is basically a stencil which you stick to the 81's keyboard. Using it as a guide, you then draw a circle over each key with a ballpen, which apparently causes the encircled area to bulge upwards slightly.

Whether it works or not we can't yet tell you — it only arrived in the office this morning. Even if it does, £2 seems outrageously expensive for a small piece of cardboard.

But interested parties should proceed with caution — there's a possibility that using the device on your keyboard could invalidate the guarantee.

McQuillen, Penrhos, Glyn Circle, Kinnel Bay, Rhyl

Put your micro in a Space Station

Inspired by the flight of the Challenger space shuttle, Microage has called its computer desk the Space Station.

It's got space for printers, disc drives, a monitor, and cassettes, as well as for your micro, and is finished in tasteful teak vinyl. It costs £50.

Microage has also brought out a computer-compatible cassette

recorder for £35.

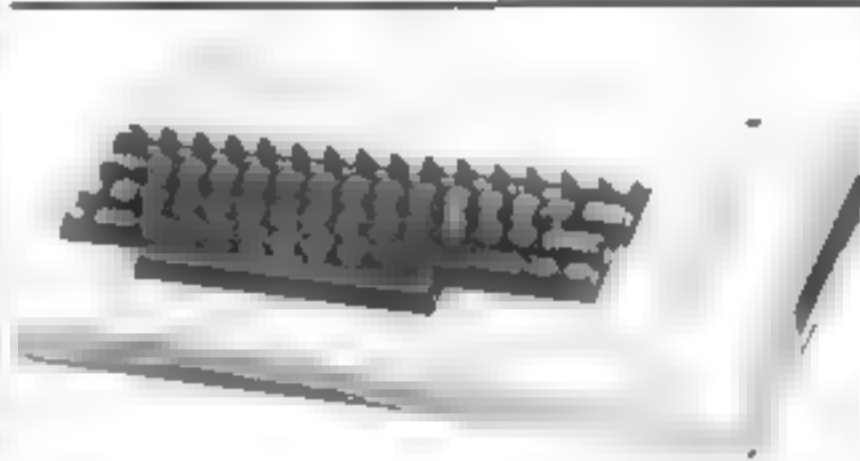
And to tempt you into buying its more expensive computer goodies, it's introduced a discount card scheme. Card holders can get a five per cent discount on any hardware, — provided it's not a micro, and provided it costs over £100.

Microage, 135 Hale Lane, Edgware, Middlesex

VIC-20 PROGRAM

Journey deep into space and save civilisation from an alien invasion

Your spacecraft is ready, laser cannons fully armed and your sealed orders are handed to you by Peter Berrecloth, who wrote this great game for the VIC-20, plus a joystick



```

@ GOSUB5000 GOSUB8000 GOSUB5500 GOSUB7500 GOSUB900
@
1 DEFN(X)=INT(RND(1)*X) GOTO10
5 POKE1,1 POKE1-22,37 POKE1-44,32 POKEF @ RETURN
10 PA=37151 POKEPA @ PA=PA+1 RA=PA+?
15 N=PEEK(PA) POKEPA 127 N=PEEK(PA) POKEPA,255 X=X
+1 GOSUB5
20 IF(MAND4)=0THENI=[-22 GOSUB6000
25 IF(MAND9)=0THENI=[+22
30 IF(MAND128)=0THENI=[+1 GOSUB6005
35 IF(MAND,6)=0THENI=[-1 GOSUB6810
40 IF(MAND32)=0ANDK=0THENL=L-.2 GOSUB5500 GOSUB681
@
41 IF(K7600)THENI=[+22
42 IF(I>0)R5THENI=[-22
45 IFK=0THENH=] GOTO20
50 POKE 200+ K*(3) GOTO55 40 65
55 POKEH @ POKEH-22 @ H=H+22 P=194 GOTO70
60 POKEH,0 H=H-1 POKEH-21,0 P=192 GOTO70
65 POKEH,0 H=H+1 POKEH-23,0 P=192 GOTO70
70 O=PEEK(H+22) IF(O<>32)THENM=0
71 IFH>81R5THENK=@ POKEF @
75 POKEH P
80 GOSUB5
85 O=PEEK(I+22) IF(O<>32AND(O<>31)THENM=0
90 IF(I$)*"000030"THENI=0
95 IFRND(1)>.8THENPOKEB(42+FN(20)) 15
100 ONFN(6)GOTO110 120,1,0,140 150
110 PRINT" MCA" M BS GOTO15
120 PRINT" ME" M" GOTO15
130 PRINT" MCA" M" GOTO15
140 PRINT" MI" M" GOTO15
150 TRND(1) > .5 THENPRINT" SLS" M=4K
GOTO5
55 PRINT" MCA" M" GOTO15
60 GOTO15
1000 IF(I$)*"000050"THEN2000

```

Main variables

I = player's ship position
J = fuel
H = position of bomb
K = fire direction flag
L = fuel
X = score
Y = high score
O = PEEK location of ship
P = character used for bomb

Hints on characters

Not very easy to all but here goes

Reverse field characters and what they do: R reverse video, normal video, Q cursor right, I cursor left, O cursor up, open heart draw screen and S cursor down

All others are just colours and are not important

POKE 3687-48 produces an extra line at the bottom to display lives and fuel which is not affected by scrolling. POKE 3689-255 obtains hires mode with reverse field R producing text. 3687-4-36877 are the voices. 3687-8-85 are the screen locations. 3687-18005, colour location. 30720, colour location. screen location.

All PRINT statements need to be altered because they are 20 characters long enough. All VIC-20s with a paper tape are any line (22) need to be changed to 20. However, the characters fit in a row on our computer. The joystick and hires loadings need to suit your computer.

The font for the title may have to change. It is called by line 25.

How it works

Main subroutine: 5: draw ship
10-20 set up and read joystick
41-42 make sure you don't leave the screen
45 Update fuel and position when not firing (K, O)
50-65 calculate position of bomb
70-75 check for hit and draw bomb
85 check for crash
100-105 horizontal routine
105-108 wiggle fuel routine
200-205 aimfield, aimfield, aimfield
205-210 aim routine
210-215 docking ship
270-275 walls routine
300-305 check for docking
305-315 crash routine, and check lives left
320-325 set up screen and variables
330 draw lives
340 scoring and ship state routine
405-425 determine direction of fire by joystick
430 game over routine and

VIC-20 PROGRAM

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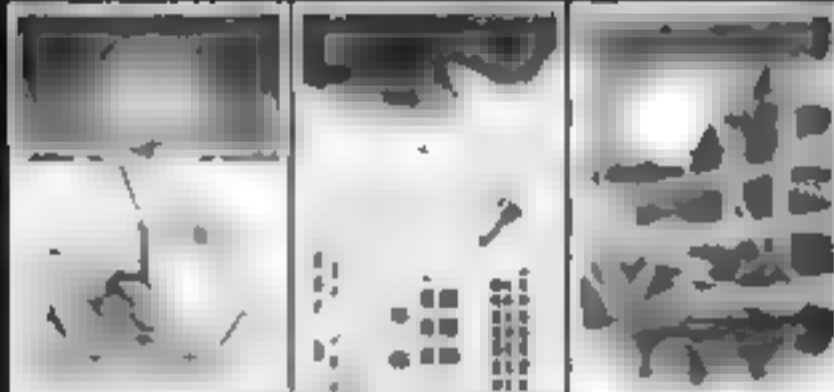
128 DATA 28 28 54 42 127 99.65
129 DATA 128 67 36 24.16 44,194.1
130 DATA 0 0 0 0.0 0 0
131 DATA 16.8 170.85 8 16 0
132 DATA 232,136,200,136,136,238 0
133 DATA 14,69,69,101,21,85,34,0
134 DATA 28,28,54 42,127,99,65
135 DATA 16 16 56 68 118 118 44,56
136 DATA 15,14,30,123,55,30,30,31
199 DATA " O R E " " T,A,B,L,E."
200 FORT=8T0118 POKE7168+T+30720 0 NEXT
300 AS=" HIT ANY KEY TO GO ON"

301 PRINT "XXXXXXXXXXXX" LEFT$(AS,22)
302 WS=AS QS=RIGHT$(AS 43, AS=QS+LEFT$(WS,1) FORQ=
1T080 NEXT GET$ IFQS="" THEN301
303 PRINT "XXXXXXXXXX", POKE36869 255
304 READ# IFAS="" THEN305
305 FORT=25T0.28STEP-6 POKE2 T NEXT POKE2,0 PRINT
"AS, 0T0304
306 AS="
OSUB400
307 FORQ=1T020 PRINT "XXXXXXXX" LEFT$(AS 22 GOSUB40
0 NEXT
    
```

```

308 AS="
OSUB400
309 FORQ=1T020 PRINT "XXXXXXXXXXXXXXXXXXXXXXXXXXXX" LEFT$(AS 22) GOSUB
400 NEXT
310 AS="
OSUB400
311 FORQ=1T020 PRINT "XXXXXXXXXXXXXXXXXXXXXXXXXXXX" LEFT$(AS,22) GOS
UB400 NEXT
312 AS="
OSUB400
313 FORQ=1T020 PRINT "XXXXXXXXXXXXXXXXXXXXXXXXXXXX" LEFT$(AS,22) G
OSUB400 NEXT
314 AS="
OSUB400
315 FORQ=1T020 PRINT "XXXXXXXXXXXXXXXXXXXXXXXXXXXX" LEFT$(AS,22)
GOSUB400 NEXT
316 AS=" HIT A KEY WHEN YOU ARE READY TO LOAD PART
2 - "
317 QS=AS RS=RIGHT$(AS 45) AS=RS+LEFT$(QS,1) PRINT
"XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX" LEFT$(AS,22)
318 GET# IFDS="" THENFORT=1T080 NEXT GOTO317
319 POKE36869 248 SYS64820
400 WS=AS ES=RIGHT$(AS,39) AS=ES+LEFT$(WS,1) FORQ=
1T080 NEXT RETURN
    
```

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Scaley monsters

Androids, zombies, vultures... your opponents in these games are not a pretty sight. Do the games look better than the monsters? Our reviewers tell you what they thought

Androids Spectrum £5.95

Sunshine Books, Hobhouse Court, 19 Whitcomb Street, London WC2 7HF

Androids is a maze game in which you run down endless corridors to find an exit. Lurking Androids will fire at you if you get in their line of sight unless you shoot and destroy them first.

The encounters use up your stock of lives and fire power but you can reload at points around the maze. You score points for Androids hit and for finding an exit.

A useful option allows the control keys to be set to suit you, just the kind of option users. An unusual feature is the offer by the publishers of cash prizes for high scores.

The maze is extensive and only the part you are in is shown so a good memory helps. The Androids are not exactly fearsome, but the man is really quick and agile. No speed or difficulty choices given, but this does not detract from the game.

instructions 80%
playability 90%
graphics 70%
value for money 60%



Centropods Commodore 64 plus Joystick £5.99

Rabbit, 180 Station Road, Harrow, Middx HA1 2DE

The Commodore 64 is proving no slouch when it comes to duplicating arcade games. Centropods is a version of the popular Centipede game.

The playfield consists of a black background populated by purple mushroom-like growths, and the player's white blaster which can be moved freely around the lower part of the screen.

A yellow wriggly 'Centron' comes squirming down diagonally in direction when it touches a mushroom. It must be destroyed by blasting each of its body segments individually, which causes the creature to split up, each dead segment becoming a new mushroom.

Other hazards include a red spinning buzzer and an orange fire pod, both of which can be shot for bonus points. Green rockets drop down, spreading more mushrooms, and the action gets more and more frantic as the Centron nears the bottom.

instructions 80%
playability 70%
graphics 60%
value for money 50%



Critters VIC + BK £5.99

Rabbit, 180 Station Road, Harrow, Middx HA1 2DE

In 1994 vultures have grown to a height of six feet by the novel approach of becoming vegetarians with a weakness for cherries. It is your task as the local cherry baron to protect your valuable crop from the evil birds by blasting them out of the sky.

This program requires a fair bit of large memory expansion and I must confess I wondered where it was all used since the screen display is rather basic. The graphics and animation

of birds and cherries are excellent with much flapping of wings and swooping of vultures. The player is also very well-drawn especially when a fast-moving swooping bird knocks him to the ground where he is temporarily stunned.

All in all, however, this game is not outstanding. Although playable I suspect it could become tedious after a while. Only time will tell.

instructions 70%
playability 70%
graphics 90%
value for money 70%



Allen Soccer VIC-20 £5.99

Rabbit, 180 Station Road, Harrow, Middx HA1 2DE

Allen Soccer is a very strange game. It is a little like pinball with a ball bouncing up and down among a collection of rather passive aliens which have eyes and plunges into the goal in such

Not many games are this instructive. It is a nice way of playing soccer in a way that is interesting and fun. The sound effects are quite nice particularly the clicks.

and buzzes. If this is the way aliens play soccer how come they are so aggressive in other fields? There is no sharp attacking play in fact no movement at all. Hardly the hyperactive laser toring aliens that we know and love.

instructions 50%
playability 20%
graphics 70%
value for money 10%



Zombies and Potholes Jupiter Ace plus 16K

Jupiter, Cantah, Chestnut Buildings, Bateman Street, Cambridge CB2 1E7

When you consider how much games software is simply a rehash, it would be nice to be able to give a big welcome to something even slightly different.

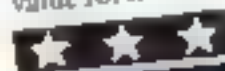
This game moves a 'man' in flight from voracious zombies. The aim is to manoeuvre a pothole between the man and the zombie, so the latter falls into it and gets deleted. Difficulty level

can be changed by varying parameters.

Incredibly on a 10MHz machine this game is rather slow and with eight keys to control it more or less has to be. If it went faster it could become unplayable but as it is I soon got bored and tended to let my man fall down the pothole too.

The program then prints an excitingly rude message. Should wow them in the first schools, but not really a program for adults.

instructions 80%
playability 40%
graphics 60%
value for money 40%



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Keeping it all together

Tidy up your messy micro with these do-it-yourself projects from Vic Rogers

The advertisements for home computers never show all the wiring and paraphernalia that forms part and parcel of the whole system.

With the VIC-20 for example, there is a cable to the cassette recorder, another to the transformer and plug and yet another to the modulator and away to the TV.

An important consideration when buying my VIC was the educational value it would have for my two young daughters. However, on using it the first few times it soon became clear that some tidying up of the leads would have to take place to avoid a disaster.

A long weekend away from the micro in the garage with some ply offcuts and some wood glue soon had a remedy, and my new storage module for all the VIC bits has proved very successful.

As can be seen in the photo the modulator and power pack are out of sight and held in position by the careful placement of some dowel rods that also help support the top. It is also relatively easy to get access to the back of the computer to plug in RAM packs and cartridges. The space at the side gives access to the on/off switch, the control port and as it happens, is just the right width to store cassettes.

The recorder sits on top and the extra space next to it is usually occupied by a perspex menu holder pinched from the kitchen. I have found this ideal for keeping magazines and instruction manuals in just the correct position to read from while keying in.

Although not shown in the photo, the TV can sit on the top of the module however, I find it too close to the keyboard for eye comfort.

The module has been in use for about a year and been very useful. Mine is painted in chocolate to contrast with the VIC's cream — very chic! The colour and dimensions could

easily be varied to suit any micro.

External dimensions, (for a VIC)
 depth 15.15ins
 width 19.50ins
 height (inc rubber pads) 5.50ins
 depth of shelf 8.25ins

Now that I have expanded my system with the addition of a disc drive and printer I have had to resize and rearrange the storage facilities.

I converted a spare bedroom into an office and the micro equipment is now kept on an easily demountable table top. It has to be easily taken apart as the room is needed from time to time for guests.

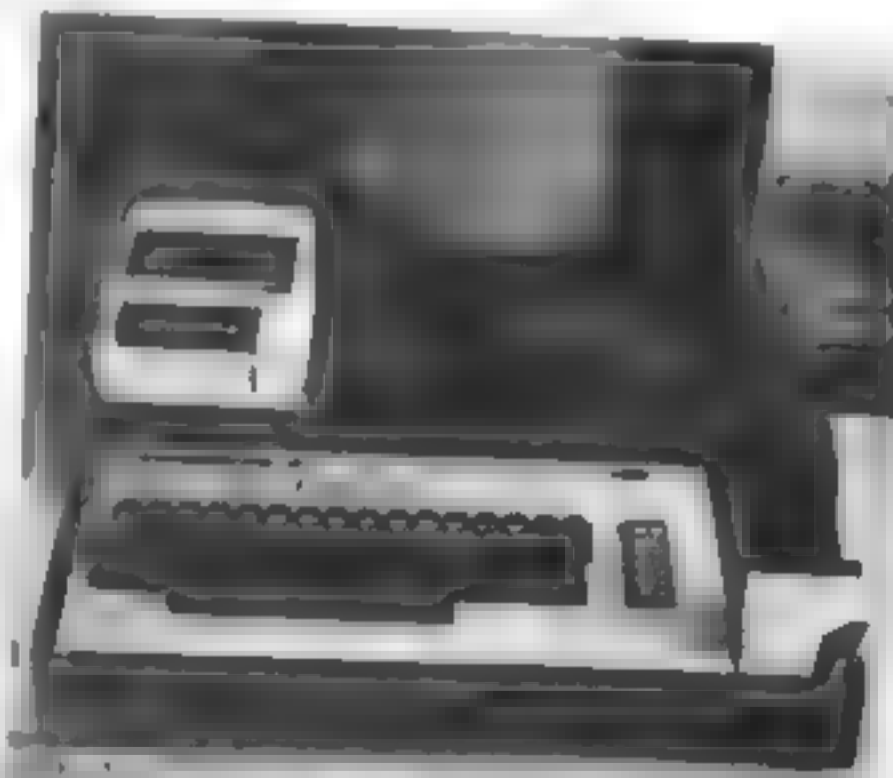
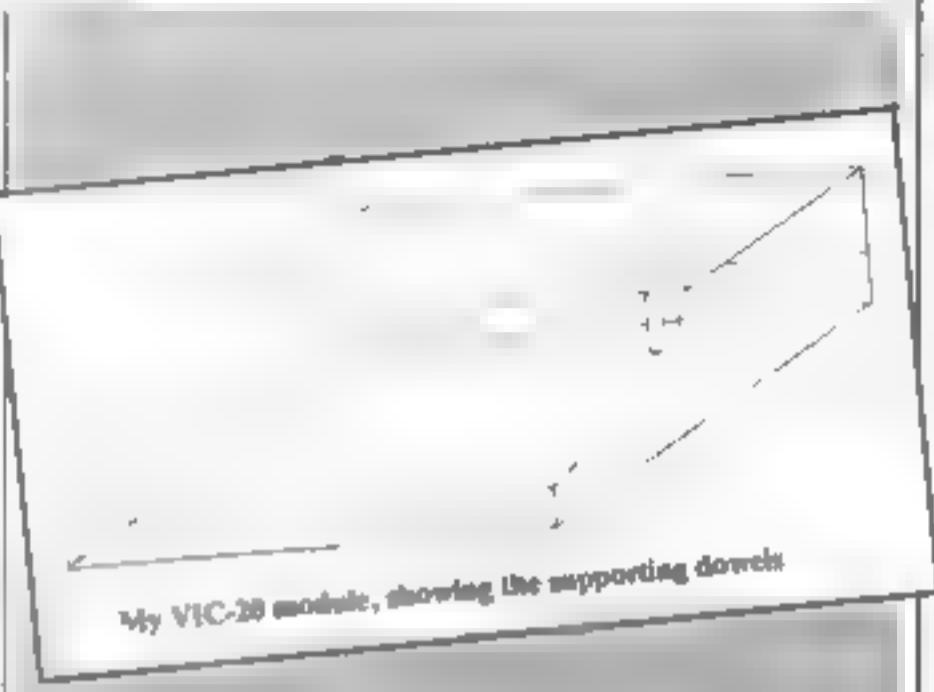
To construct the table top a 6ft batten was screwed to the wall with six dowels projecting from the top. This is made from an old flush door and in one edge six holes were drilled to match the dowels. Two legs made from ordinary 2x2 were screwed on the outer side and, Hey Presto — a spacious table top to keep all the equipment.

To complement the table top a small raised platform was built from scrap chipboard to hide most of the cables, and the hole cut in the rear of the door for the power cables to drop through to an extension lead.

The main cost of the module was in paint and glue and amounted to no more than £1. It has proved strong and handy and has even been used to transport the micro to colleges where I use it as a lecturing aid.

Although the table top is now in use almost daily the module is not redundant as the basic VIC is still put in it if I want to use it with the colour TV downstairs. The cost of the door for the table top was £3 from a demolition site and the other main cost was the extension lead.

In the photo the door is shown mounted on battens but I hope eventually to smarten it up with some beech screw-in legs.





THE WIZARD'S WARRIORS A fast moving game that matches level elements in your skill as a player by becoming increasingly more difficult. By offering you the full range of options you can choose how you want to play through the maze. A full implementation of this program enables such features as a continuous series of sound effects, a made quality graphics, double print setting, and for the very first time...

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Trapped!

Find the keys before the ghost gets a taste for you

You are trapped in a maze with a door at the top left hand corner of the screen.

By wiggling to open the door and escape to find the keys in the maze - which are scattered all over the maze.

But a ghost patrols the maze and if he sees you he will swing the alarm and you will be captured and eaten.

The random movement of the ghost may seem particularly scary but it's not - it's just a simple algorithm. The program will run on all Spectrum models from 4K to 128K.

Here's a maze game with a difference — instead of gobbling fruit you have to find keys to unlock the door. But beware of the ghost, says William Mitchell who wrote the program for 16K or 48K Spectrum



Variables
 I = number of times you've been eaten
 X = your x position
 Y = your y position
 a = x position of ghost
 b = y position of ghost

Hints in conversion
 The program will run on all Spectrum models from 4K to 128K. It uses the commands: CLEAR, PEEK, POKE, PRINT, GOTO, GOSUB, RETURN, and BEEP. It also uses the graphics commands: SCREEN, AT, INK, and OVER. The program will run on all Spectrum models from 4K to 128K.

```

1 PAPER 1. INK 8: BORDER 2 C
LS
2 LET d=1
3 GO SUB 4000
4 PAPER 7: INK 1: BORDER 2. C
LS
5 LET h=0
7 LET q=0
10 REM #####
120 REM #
130 REM #
135 REM #U Mitchell#
140 REM #
150 REM # A KEYS A #
160 REM #
170 REM #####
90 PRINT "....."
105 PRINT " "
110 PRINT "#####"
120 PRINT "#####"
130 PRINT "#####"
140 PRINT "#####"
150 PRINT "#####"
160 PRINT "#####"
170 PRINT "#####"
180 PRINT "#####"
190 PRINT "#####"
200 PRINT "#####"
210 PRINT "#####"
220 PRINT "#####"
230 PRINT "#####"
240 PRINT "#####"
250 PRINT "#####"
    
```

```

260 PRINT "....."
270 FOR a=1 TO 5
280 LET x=INT (RND*21) +1
290 LET y=INT (RND*15) +1
300 IF SCREENS (x,y) THEN
GO TO 305
310 PRINT AT x,y " "
320 LET z=x
330 LET x=x+1
340 LET y=y+1
350 LET v=x
360 LET x=x-1
370 LET y=y+1
380 LET w=x
390 LET x=x+1
400 LET y=y-1
410 IF SCREENS (z,y) THEN GOTO 300
420 PRINT OVER 1 AT x,y, INK 2
430 LET r=SCREENS (a,b)
440 PRINT AT x,y, INK 0, " "
450 IF r=0 THEN LET q=q+1
460 LET c=1: IF a=7: GOTO 470
470 BEEP (16*y)/100, h
480 IF INKEY$(0) THEN LET s$=I
490 PRINT AT a,b " "
500 LET b=b+(s$=8) (s$=5)
510 LET a=a+(s$=6) (s$=7)
520 IF SCREENS (a,b) THEN LET
a=b-(s$=8) (s$=5)
530 LET a=(s$=5) + a$
490 PRINT OVER 1 AT z,y, "A"
490 IF RND<.9 THEN GO TO 304
470 GO TO 303
2000 IF a=1 OR a=5 OR a=9 OR b=1
OR b=17 THEN CLS PRINT AT 10
10: FLASH 1, 'I SEE YOU' BEEP
5:5: RUN
=001 RETURN
    
```


SPECTRUM PROGRAM

```

3000 IF B=1 OR B=6 OR B=11 OR B=
4000 THEN CLY PRINT AT 1
5000 I SEE YOU BEE
6000 DATA RN
7000 BIN 00011100 BIN 00010
8000 BIN 001000 BIN 01111111 BI
9000 BIN 0001000 BIN 00011100 BIN 000
01000 BIN 00010100
10000 DATA BIN 000111000 BIN 01111
11000 BIN 01010100 BIN 01010100 BI
12000 BIN 1111110 BIN 1111110 BIN 1101
13000 BIN 10010100
14000 DATA BIN 10010100
15000 DATA BIN 10010100
16000 DATA BIN 10010100
17000 DATA BIN 10010100
18000 DATA BIN 10010100
19000 DATA BIN 10010100
20000 PRINT PAPER 1, INK 4,

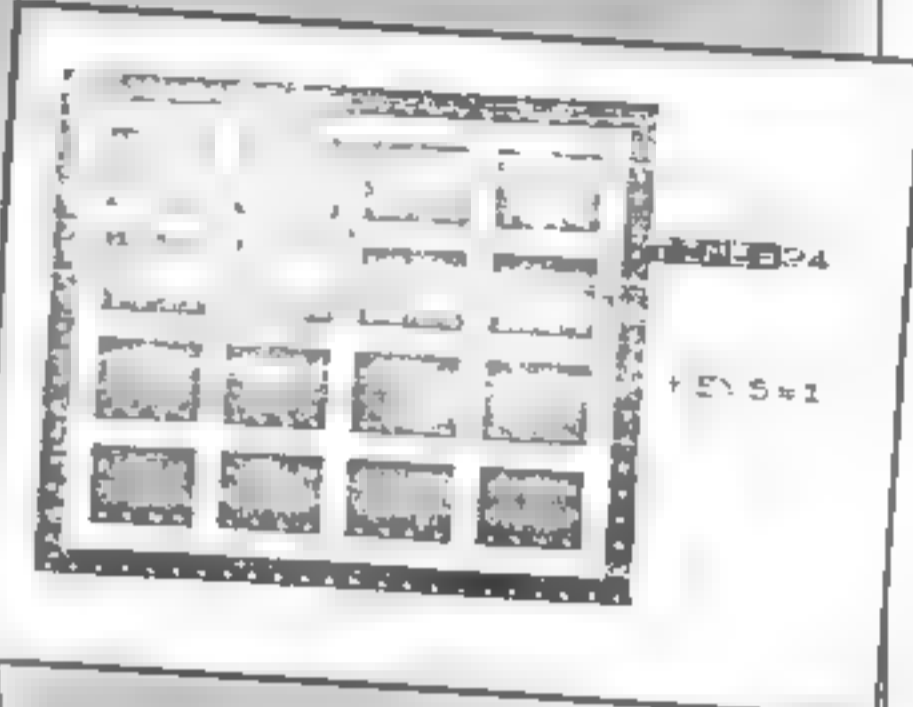
```

KEYS

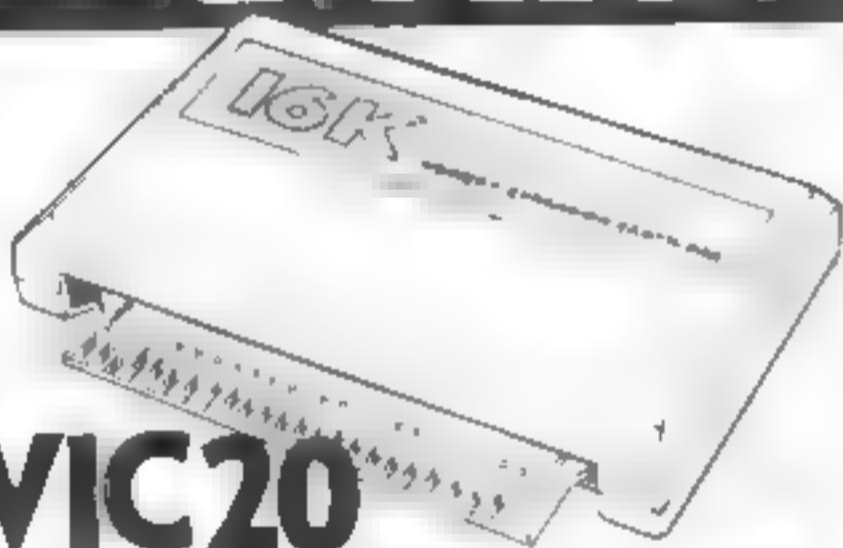
```

4040 PRINT YOU MUST GO ROUND
5000 PRINT AND PICK UP
6000 PRINT THE KEYS AND
7000 PRINT THEN GO TO GET
8000 PRINT THE KEYS TO GET
9000 PRINT THE KEYS TO GET
0000 PRINT THE KEYS TO GET
10000 PRINT THE KEYS TO GET
11000 PRINT THE KEYS TO GET
12000 PRINT THE KEYS TO GET
13000 PRINT THE KEYS TO GET
14000 PRINT THE KEYS TO GET
15000 PRINT THE KEYS TO GET
16000 PRINT THE KEYS TO GET
17000 PRINT THE KEYS TO GET
18000 PRINT THE KEYS TO GET
19000 PRINT THE KEYS TO GET
20000 PRINT THE KEYS TO GET

```



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Getting it figured

These programs are designed to make learning maths and geometry child's play

Numerons 48K Lynx £9.99

Camsoft 33a Bridge Street
Cambridge CB2 1LW

Numerons is one of the first programs to become available for the splendid Lynx microcomputer. The producers are to be congratulated in trying to combine an educational function with a game format.

The aim of the game is to fire numbers between 1 and 9, at invaders which themselves bear numbers.

In the standard option of the game, as the invader makes its

way down the screen it can be destroyed by being hit by a number which divides exactly in to the number on the invader. The higher the number fired the more points are scored.

The numerous variations to the game such as day and night display, nine levels of difficulty, three arithmetical variants and a system of incentives for achieving high scores all add up to a game which can be replayed many times without losing interest. **B.C.**

instructions 80%
playability 85%
graphics 90%
value for money 70%



Happy Math TI-99/4A £8

Micro Leaf Microwave from
Mainless Software 10 Astone
Road Stockport SK4 5AH

Any educational game which gets children interested in solving arithmetical problems is, in my view, money well spent. Happy Math is aimed at youngsters who are just starting to work with figures and the problems are therefore fairly simple.

The child can choose to carry out addition or subtraction at three levels: easy, harder and hardest. The thing I liked most about this program was the ex-

cellent use of graphics. If the correct answer to a problem is input you are presented with a smiling face and two hands, one of which waves at you.

Symbols such as aeroplanes, ships and steam engines appear on the screen to demonstrate how the answer is arrived at. For example, four aeroplanes followed by six sailing ships.

instructions 80%
playability 85%
graphics 90%
value for money 70%



Number Puzzler VIC-20 plus 8K £8.95

ASK London House 68 Richmond Road London SW15 2RP

This is an improve-your-arithmetical cassette, supposedly for four to 12-year-olds, though I think the stated age range is low at both ends. Six upwards I'd say to get value for money. It's the two games.

On side A is a noughts and crosses type game for practising addition, subtraction or both using between one and four dice by

three boards. It gets quite complicated, particularly with four boards to choose from.

Side B has two options — magic squares or self test. In magic squares a three by three board is displayed with three numbers already entered. You complete the rest to give as many rows, columns and diagonals totalling the same value as possible. **B.J.**

instructions 90%
playability 80%
graphics 80%
value for money 70%



Fracts (Cassette 5) BBC B £8

Cottage Software, Setty Hill,
Wharfedale Yorkshire

This cassette is supposedly designed to reinforce the understanding of equivalent fractions. I have my doubts.

You can't select the levels of difficulty. You're simply presented with a problem involving mixed numbers to add, subtract, multiply or divide with a prompt to tell you how to answer.

The program is presented in a simple form. It uses the form of YELLOW times GREEN plus WHITE and the numbers of the

problem are coloured accordingly.

At first glance this may seem a good idea. But maths is about understanding, not about learning rules and the program does little to encourage such understanding.

You also have to progress along the same path for each part of the problem. There's no facility to go back if a right answer. At the end of eight problems you can play Nim or Tower of Hanoi. **D.C.**

instructions 60%
playability 30%
graphics 30%
value for money 20%



Shape Up VIC-20 plus 16K £8.95

ASK London House 68 Richmond Road London SW15 2RP

Shape Up gives practice in using the four basic geometric shapes — circle, square, triangle and rectangle — plus a concept of large and small. It's aimed at kids of three and upwards but I doubt if the upwards would extend much past five or six.

There are five different sections all on some aspect of matching shape and/or size. Two ask you to match a shape with one of

two choices by setting the points on a sawtooth siding. In one a burglar steals one of the shapes and you identify which one is missing (harder than it sounds).

Two coloured shapes generated at random to match a set of outline shapes. Though you fill the outlines quite quickly the last couple can take ages — one of the few poor design features in an otherwise well thought-out program. **B.J.**

instructions 75%
playability 70%
graphics 80%
value for money 70%



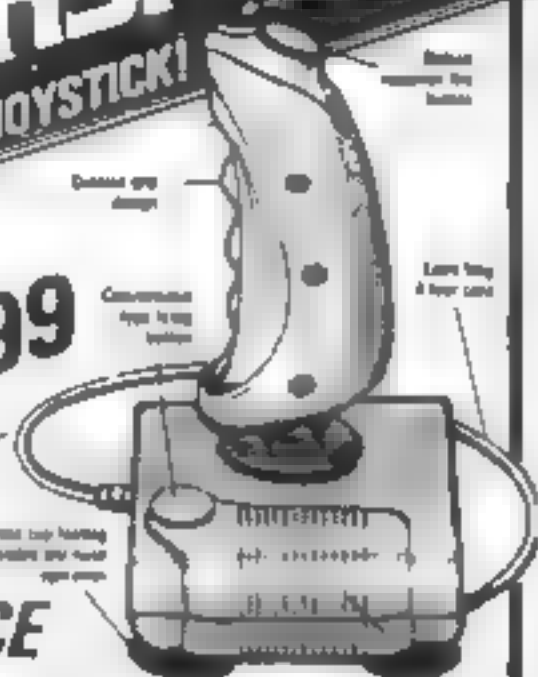
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READ-OUT



Don't panic — it's simple to Interrupt

More programming advice from our Atari expert Marc Freebury. Here he shows how to use the Vertical Blank Interrupt

If you shudder at the mention of machine code, or fall faint at the word assembler don't panic — this is for you too.

The term interrupt is often the cause of much confusion to the novice machine code programmer, which is unnecessary, since the interrupt is a very simple concept.

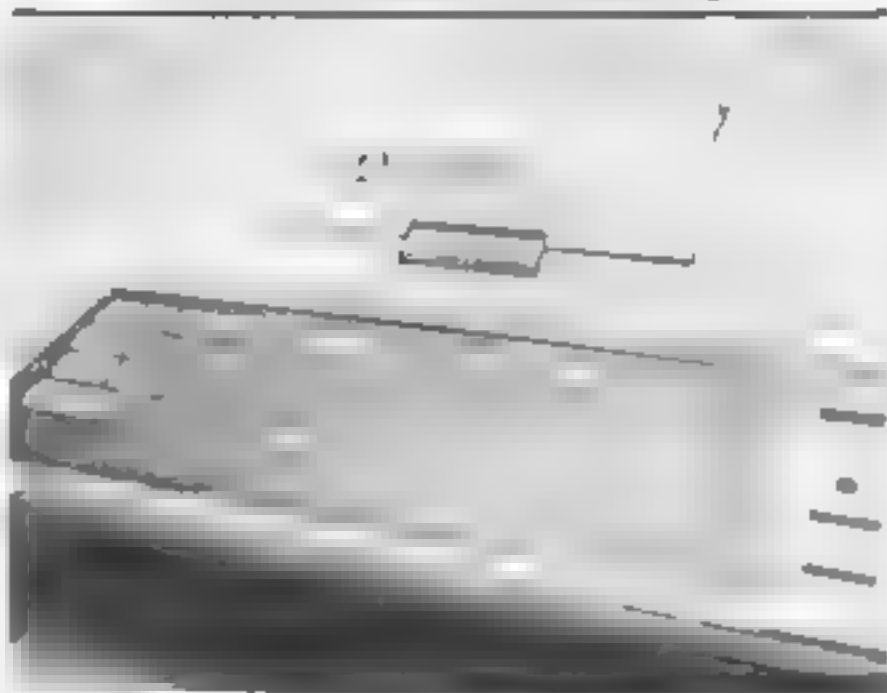
Imagine sitting at a desk, writing. Someone asks you a question. You halt your present task, determine who asked the question and formulate a reply. You then return to your previous work.

That is the simplest outline of an interrupt — a request made on the CPU by some external event to gain the CPU's attention. The CPU will halt its task at a convenient moment, do the required work and continue processing. Using this technique it is possible to run two programs simultaneously although a lot of restrictions apply and a lot of work must be done.

On the Atari an interrupt is generated every time the screen is refreshed every 50ths of a second. If it is standard during this time the CPU ignores it, such as when updating the user clock.

What? Yes, mean you don't know about the clock. Well, strictly speaking isn't a clock but a machine counter. It counts up by one every time the refresh routine is passed through. On American machines this is every 60ths of a second and is here for a useful. On our system you have one additional overscan to get the right figure.

The clock uses memory locations 18 to 26. High to low so assuming that it is accurate the



following should demonstrate a

Run over five minutes the accuracy averages 5 seconds which is usually more than accurate enough for games.

Back to our main theme. The VBI issue from being all this can be made to pass through a routine of your own design before continuing on to its own.

It is obviously very attractive since it will run independent of your main program and will appear to run without noticeable performance. However, there are restrictions.

First, the time available is limited. Second, although you will receive it with vital routines any increase in the size of the VBI means a proportionate decrease in overall processing time. Third, since you are interrupting the refresh screen every time and your program will so will a draw

VBI, and if it is too long it will cause screen difficulties. The second, called a Deferred VBI can be much longer and extends into the redrawing of the screen when changing graphics registers would be unwise.

Once you have determined which category your routine fits into, load the accumulator with 6 or immediate. Use deferred. When your routine is complete it must finish with a jump to complete the VBI — i.e. doing the machine's general tidy up. For a deferred VBI, that jump must be to E462 but for immediate it must be to E45F.

As a simple demonstration of VBI processing power, try typing in this BASIC example

```
10 RESTORE
20 DATA 165,88,24,105,16,131,165,89
30 DATA 133,1,166,0,185,17,6,45,0,210
40 DATA 192,5,208,246,76,98,228,104,162,6
50 DATA 169,169,7,52,92,228,96
60 DATA 10,54,34,41,10
70 FOR I=10 TO 41:READ A:POKE 1536,I:A=NEXT I
80 NEXT I:USR1562
```

To complete a VBI you have to change the timer unit vector. As this vector is being passed through 50 times a second, approximately a couple of BASIC POKES will not suffice. The vector is a hexadecimal value, may address 222 decimal or 544. We change it using a special operating system subroutine which must be called by machine code. The routine is:

```
LDX #544
LDY #50
LDA #507
AND #51456
```

This will cause a VBI extension located at 600 hex (1536 decimal), to be incorporated. Of course we have to put the routine here first. You might wonder about the values in the registers.

The 06 is the high byte of the address, the 05 is the low byte. The 07 is special. This is because here are two types of VBI. The first is the real actual screen blank time and is far shorter in length.

It is known as an immediate

those who can't read decimal translations of hex code (ie every month) might help explain what's happening.

1 Take the optical corner of the screen and add 16 to centralise.

2 Copy moving the string "VBI" to the screen.

3 Return to normal VBI.

Then comes the installation routine which puts up the vector as previously described. Easy comes the ATASCII codes for the string "VBI".

As this piece of code is occurring every 50ths of a second you will find it impossible to remove the string from the top of the VDU, no matter what you do even with CLR or even RUN another program.

To be rather a you will need to be a machine code person to get the most out of the VBI. Most professional games will use it. However, with such facilities are out of reach, perhaps this is the encouragement some people need to dip their toes in the world of machine code.

```
100 GRAPHICS 0:SETCOLOR 2,60:POKE 152,1:POKE 8,0:POKE 19,0:POKE 20,1
110 POSITION 7,2:HRS=MIN=SEC
120 TIME=POKE 20,256*PEEK(19)+65536*PEEK(18)
130 TIME=TIME/50
140 MIN=INT TIME/60:TIME=TIME-MIN*60
150 HRS=INT TIME/60:TIME=TIME-MIN*60
160 SEC=TIME
170 POSITION 7,2:HRS:MIN:SEC (2 spaces)
180 GOTO 120
```


You'll need fast fingers to squash the red columns

My original game for the Dragon involves moving a green square around the screen to squash down columns of red squares coming up from the bottom.

At first there are one or two columns of red squares depending on the level of difficulty selected, but more appear at regular intervals until there are 10 altogether.

The game is a bit like plate spinning — you have to keep moving backwards and forwards to keep them all under control.

The program is written entirely in BASIC, but as fairly low-resolution graphics are used for the main part of the game.

The routine to move the green square uses keyboard PEEKs, this means the square will keep moving as long as you keep your finger on the appropriate key, but you must make sure you release each key before pressing the next or the change of direction will not register.

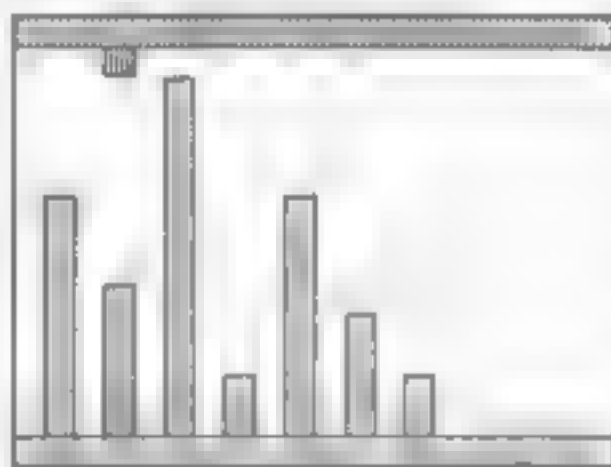
Each sideways move is of three squares — from one red column to the next — upwards moves are all two squares, but the green square moves only one square at a time downwards so that the red columns are erased.

It is possible to move sideways onto the top square of a red column, but not through the middle of one.

The score depends on the number of red columns on the screen, so it goes up slowly at first then increases rapidly as the game progresses. There is a high-score

- Variables**
- X1,X2,Y1,Y2 co-ordinates of ends of random lines of wire sequence
 - L level difficulty
 - I,J,K,M,N,L loop counters
 - W location of input column
 - S score
 - Z No. of columns in screen
 - DL delay loop counter
 - XG,YG co-ordinates of green square
 - K No. of column being erased
 - HN high score
 - NS() names of high scorers
 - Q\$ Y-N input

Electro looks simple but we reckon it's well-nigh impossible to beat. Type Margaret Norman's game into your Dragon and take up the challenge



How Electro looks on the screen

table routine at the end of the program, which could easily be adapted for other games.

There is also a title sequence — buff lines are drawn at random

on a black screen then the word Electro is drawn in the centre in black on a buff rectangle, and a short signature tune is played. This can be omitted if you wish

```

10 REM ELECTRO
20 REM BY MARGARET NORMAN
30 PCLEAR 6
40 CLS
50 PMODE4,1:PCLS0
60 LINE(25,175)-(108,108),PSET:LINE=(176,96),PSET:LINE=(200,20),PSET:LINE=(150,96),PSET:LINE=(160,108),PSET:LINE=(25,175),PSET
70 PAINT(110,110),5,5
80 PMODE4,5:SCREEN1,1:PCLS0
90 LINE(60,65)-(196,130),PSET,B:PAINT(62,67),5,5
100 FOR I=1 TO 40
110 X1=AND(255):X2=AND(255):Y1=AND(191):Y2=AND(191)
120 DRAW"BM72,77;C0;NR12D22NR12D22R12BR16L12U44BR2BL12D22NR12D22R12BR16L12U44R12BR4R12L6D44BR10U44R12D22L12R6P6D16BR4U4R12D44L12"
130 PLAY"TI0V3I02GFEDDEDDGFEDDD"
140 REM INSTRUCTIONS
150 CLS:PRINT80,"INSTRUCTIONS":PRINT
160 PRINT"TRY TO STOP THE RED WIRES FROM REACHING THE BLUE TERMINAL TO COMPLETE THE CIRCUIT."
170 PRINT"MOVE THE GREEN TERMINAL WITH THE ARROW KEYS."
180 PRINT"LAND ON TOP OF A RED WIRE, THEN MOVE DOWN TO SQUASH IT."
190 PRINT
    
```

How it works

50-70 draw "wires" on screen
at end of game
80-130 title screen
140-190 instructions
200-310 colour test
320-340 main game
350-360 print score of game
370-380 print name of player
390-400 print name of player
410-420 main game
430-440 main game
450-460 main game
470-480 main game
490-500 main game

Hints on conversion

Converting this program to run on a newer computer is fairly difficult as it uses high-resolution graphics commands which are not in the Dragon. The main sequence and flash are quite a lot of PEEKs and POKEs.

If you want to run it would be best to completely re-write the title and 'flash' sequences to suit your machine.

The Dragon version uses the use of LET and PRINT THEN statements which may be inserted where necessary.

CLS clears the text screen, the number following is address of memory location. The black screen is cleared by PEEK and POKE.

The first line is the title of the program. The rest of the lines are the main game loop. The screen is 32 columns and 16 rows.

CHR\$(143) is a green square, CHR\$(175) is a blue square, CHR\$(191) is a red square and CHR\$(207) is a buff square.

PLAY "03BAG" produces a short scrunching sound, and PLAY "04C" produces a fairly high pitched beep. (The tempo and volume for these are set in the 220 PLAY "T250V3")

All text is printed in black on a green background. The high score is printed in the top left corner interspersed with red lines (PRINT STRING\$(12,191) produces a red line).

The number 44 in the code is a keyboard buffer address of 221 in one of these indicates one of the cursor keys depressed.

DRAGON PROGRAM

```

530 INPUT "HIGH SCORE: WHAT IS YOUR NAME "; N$(5)
540 HB(5)=8
550 FOR J=5 TO 2 STEP -1
560 IF HB(J) < HB(J-1) THEN 580
570 T=HB(J): T0=HB(J-1): HB(J-1)=HB(J): HB(J)=T0
580 NEXT J
590 PRINT STRING$(32,191); PRINT TAB(8); "HIGH SCOR
EB"
600 FOR I=1 TO 5
610 PRINT N$(I); TAB(20); HB(I)
620 NEXT I
630 PRINT @54, "ANOTHER GAME (Y/N)"; INPUT D$
640 IF D$="Y" THEN 140
650 END
660 POKE(1024+XB+32+YB), 207
670 XG=XG+3+(PEEK(343)=223 AND XB)5 AND PEEK(1021+
XB+32+(YB-1)) (191.-3+(PEEK(344)=223 AND XB(2)AND
PEEK(1027+XB+32+(YB-1)) (191)
680 YG=YG+2+(PEEK(341)=223 AND YB)2)-(PEEK(342)=22
3 AND YB)14.
690 IF PEEK(1024+XB+32+YB)=191 THEN K=INT((XB+1.1)
/3)+M(K)=M(K)+32
700 IF PEEK(1024+XB+32+YB)=191 THEN PLAY"03B0B"ELS
E PLAY"DACC"
710 POKE(1024+XB+32+YB) 143
720 RETURN
    
```

```

200 INPUT "LEVEL OF DIFFICULTY (1 OR 2)"; L
210 IF L(1) AND L(2) THEN 200
220 PLAY"7250V31"
230 CLS: B=0
240 XG=20: YB=2
250 FOR I=0 TO 31
260 POKE(1024+I), 175+POKE(1024+I+480), 191: NEXT I
270 FOR J=1 TO 10
280 M(I)=1024+479+3+J: NEXT J
290 FOR I=1 TO 50
300 FOR N=1 TO 2
310 FOR M=1 TO 2
320 FOR N=1 TO 2
330 IF I(1) THEN Z=1 ELSE Z=10
340 FOR J=1 TO Z
350 M=M(I) 32
360 IF PEEK(M) (143 THEN POKE(M, 191): M(I)=M(I) IF PEEK(
M+32)=175 THEN 460
370 GOSUB 660
380 S=S+3+2
390 NEXT J
400 IF I(1) THEN GOSUB 660
410 NEXT N
420 IF I(3) THEN GOSUB 660
430 NEXT M
440 IF I(8) THEN GOSUB 660
450 NEXT K, I
460 FOR DL=0 TO 100: NEXT DL
470 PHODE4, 1
480 FOR F=1 TO 3
490 SCREEN1: PLAY"03B0B" (FOR DL=0 TO 100: NEXT DL
500 NEXT F
510 CLS: PRINT @32, "
YOU SCORED "; S
520 IF S(4)=B(5) THEN GOTO 590
    
```

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**Myriad
3K £5.99**

Rabbit, 380 Station Road, Harrow HA1 2DE

How does the idea of 25 aliens and 99 levels of play grab you? Without doubt this is the best of its type game on the market for the VIC and possibly on any other micro.

To say that Myriad is another form of its type would be to do it a gross injustice. The fifteen different forms of attacker require different strategies to defeat them and there is always more to come.

Try as I might, I could not get above level 16 and even this required hours of practice and left me with an aching thumb.

Graphics and colour are excellent, an expanded screen is used, animation is smooth and

very, very fast. At the bottom of the screen is a display of high score, present score, number of lives left, number of shields left and level of play. The shield can be extremely useful as they allow you to amply parry a very troublesome alien with impunity.

The use of the VIC's sound capabilities is also excellent. Unlike most other Rabbit games, with different aliens emitting different alien noises.

Undoubtedly the best space game available for the VIC and at a reasonable price as well.

	M.B.
Instructions	70%
playability	90%
graphics	90%
value of money	95%



**Matrix
plus 8K £6.00**

Llamasoft, 49 Mount Pleasant, Tadley

This is an upgraded version of Llamasoft's Stronix in which you pilot a space ship on a grid and try to destroy invading navies.

These take the form of segmented droids and cosmic commandos (Fraud would have something to say about that). A collision with a nasty results in death and they occasionally bomb you.

There are all sorts of other things going on and other ways of doing things. In the whole the scenario is nicely complex and each screen offers new variants.

The use of sound and colour are good and the animation and graphic effect brilliant. The pro-

gram offers some unusual extras such as screen centering, a pause option and the ability to visit any of the first six screens if they are too easy.

On the whole I have mixed feelings about this offering. On one hand it is the best arcade game I have had the pleasure of reviewing. It is however, a bit hard on owners of Commodore to bring out an updated version. Perhaps an exchange deal could be offered to owners of the matrix game.

Anyway, if your VIC has enough memory, pawn your soul and get this game. I don't think you'll regret it.

Instructions	80%
playability	85%
graphics	90%
value of money	100%



Xerus £4.99

Electronic Leisure, 11 Sherwood Close, Chesham, Bucks HP8 2DD

Although you would think it impossible, here is yet another variant on the invader theme. You can roll a laser base which moves along the bottom of the screen and with which you endeavour to repulse waves of invaders.

The aliens move from top to bottom and generally drop bombs on you. If they reach the bottom of the screen they change into time bombs which will destroy you if you are in range. If you complete a wave of invaders a new lot of nastier ones

appear. As usual you try to last as long as possible with your allocated (four) lives.

The quality of graphics and animation were fair but the sound effects were annoying in the extreme.

The game uses a standard two-wire lead and fans with a nice detailed description of the controls and the meaning of the various items displayed during play. Later authors should take heed.

Instructions	90%
playability	80%
graphics	70%
value of money	70%



**Games
invasion**

Can you fight off the hostile invaders? Would you even want to? Our reviewers assess a selection of action games

**Space Phreaks
£5.99**

Rabbit, 380 Station Road, Harrow HA1 2DE

Another shoot the alien type but more in the spirit of high maths due to the various vector geometry of the man hunter there. Looking like little apples, butterflies and mushrooms they swirl and loop across the screen.

I enjoyed this game a lot. I enjoy many shoot the alien games. But I already own a couple of very good shoot the alien games, and I doubt if I would actually want to buy this one.

wouldn't like to get too many of them. Rabbit park their aliens in fast boxes without any stars which is a little excuse if there is the instruction's soon become somewhat dull in the game. In this case, it is a great problem as the instructions are decided as are given. The whole thing is just a touch predictable.

Instructions	70%
playability	80%
graphics	80%
value of money	80%



**Games Compendium 01
48K Oric-1 £7.95**

Salamander, 27 Ditchley Road, Brighton BN1 4QJ

Four all-BASIC games appear in this compendium: Donkey Derby, Viper, Kingdom, and Space Station. The two arcade style games, Viper and Space Station, are very slow so they provide only limited enjoyment.

In Viper you move a snake around the screen picking up numbers, while trying to avoid obstructions or falling off the edge of the screen.

The object of Space Station is to dock a space capsule. You control the capsule in three dimensions, avoiding the

the part of an emperor of a small state. No graphics are used, but the text is Gothic style - a nice touch.

Donkey Derby is a game for several players. You bet on the outcome of a race between six donkeys. This is the best game of the four for graphics and sound effects, but is still unremarkable.

The cassette is well packaged, but the standard of the program is somewhat of those available in the early days of the Oric-1.

Instructions	50%
playability	40%
graphics	30%
value for money	40%



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Use your TI to name the day

You can stay one jump ahead with Alan Munchie's calendar program for the TI-99/4A



Key in my program and you can work out the day you were born on, or what day Christmas Eve will fall on in 1997

The program makes use of simple string-handling techniques to produce a calendar for any month of any year and is designed to be quick and easy to use. It is fairly compact and uses only about 3½K of RAM when run

A title screen asks the user to INPUT the year and month (1-12) for which a calendar is required. This screen is displayed while details of the calendar for the given month are calculated

The calendar is prepared from a string representation of the dates 1-31 held in MS and arrays which hold details of the names of the months (MONTHS(X)) and the number of days in each month (MLEN(X))

Once calculation is complete, the screen is cleared and a calendar display screen is generated. MS is then used via a short "print at" subroutine to display the dates on the screen

An interesting feature of this program for beginners lies in the use of the keys on the top of the TI's keyboard for PROC'D (ASCII code 12, key functions 6) and BACK (ASCII code 15, key function 9). These functions allow the user of the program to select the calendar for the month following or preceding that currently being displayed, respectively

Note, however, that these functions are software defined — that is, their operations is made possible by program lines, in this case lines 790-920

In fact these functions could be assigned to any key on the con-



sole, with the exception of BREAK (function 4) and CLEAR (function =)

See page 8-10 of the TI User's Reference Guide and the TI Basic Reference Card for further details of function key codes

When keying in lines 200 and 210, note that the spaces left between the numbers 1 31 are vital to ensure the correct display of the calendar. There must be three spaces between 1 and 2, two spaces between 10 and 11, and so on

By the way, the program is based on the Gregorian calendar — so it won't work for dates before 1582!

How it works

130-210: Instructions of the program

210-220: Program listing

220-230: Program listing

230-240: Program listing

240-250: Program listing

250-260: Program listing

260-270: Program listing

270-280: Program listing

280-290: Program listing

290-300: Program listing

SOFTWARE REVIEWS

MOO & HANGMAN

Jupiter Ace

£5.95

Jupiter Cantab, Cheshunt Building, Bateman Street, Cambridge CB2 1LZ

Actually Hangman comes first, despite what it says on the card. This is an effective interpretation of the popular spelling game, for two players, in which you are liable to get hanged more rapidly than in, for example, the PET version which has been around for years.

The graphics, however, are rather imaginative, for if you win the little man leaps free from the scaffold, saved in the nick of

time! If you lose, the trap doors open automatically — a nice little novelty.

MOO is another old favourite in which you guess a four digit number the computer randomly chooses. You input a four digit guess and are told how many bulls (correct digit/correctly placed) and cows (correct digit in the wrong place) your entries merit, and you carry on until your guess is right.

instructions	65%
playability	80%
graphics	85%
value for money	85%



Have a think on these

Here, for the thinking micro owner, are some games which claim to let you do just that. For our reviewers' thoughts on them, read on

DICTION

48K Oric £7.95

CCS, 14 Langton Way, Blackheath, London SE3 7TL. Despite being loosely based on the TV programme of the same name, the game has no fast moving deals, requires little financial skill, and failed to provide much excitement or enjoyment.

The program is recorded twice on the cassette, at fast and slow speeds. Despite several attempts, the program failed to load at the fast baud rate. At the slow rate the program loaded with several errors. These errors I had to correct to allow the game to be played.

The aim is to try to make a large profit in the oil business by buying plots of land, drilling for oil.

A balance sheet and information on cash flow are displayed on the screen to help you with your decisions.

There are several bugs in the program (e.g. pressing an alphabetic key when a numeric input is required is not rejected).

In business terms too, I felt the game was ill-judged.

instructions	60%
playability	70%
graphics	70%
value for money	20%



Brain Strain Commodore 64 £9.95

ASN 17 Adelphi Crescent, Hayes Park LB4 8LY

Fans of the board game Mastermind will be eager to play this version for the 64. After several pages of instruction the display is divided into three parts. The top left section gives a list of colours with their corresponding keys, while in the lower left is an explanation of the black white scoring system.

The right half is the board itself, numbered in rows 1-10, and by pressing appropriate keys, your guesses as to each

colour in the secretly chosen code is displayed by a circle of that colour.

The number of correct pegs, etc is given after each row entered. If you are successful the 64 will play a "Congratulations" tune while an unsuccessful attempt is met by a dismal note, each time accompanied by flashing displays.

This is a very professional and well written piece of software which gives the conventional Mastermind game new appeal.

instructions	80%
playability	80%
graphics	65%
value for money	60%



Farmer TI-99/4A £3

Stainless Software, 10 Alstone Road, Stockport, Cheshire SK4 5AH

If eating sandwiches, lying in bed and looking for markets are what you consider the vital ingredients for an exciting game, then you will enjoy Farmer. I was bored after 10 minutes.

You have six commands at your disposal with which to direct the game, its objective being to accumulate \$30,000. Each command used reduces your rest and sustenance, so visits to the market must be frequently punctuated by instruc-

tions to eat and sleep.

If you don't starve or die through insomnia then the most you can look forward to is finding an extra sandwich, being bitten by dogs, having money stolen or your livestock rustled.

Each game starts with a quick burst of "Old Mac Donald", but there are no graphics. Variety is provided by a few changes in screen colour.

Overall — very unimpressive.

instructions	90%
playability	20%
graphics	0%
value for money	5%



Airline 48K Oric £7.95

CCS, 14 Langton Way, Blackheath, London SE3 7TL

The object is to direct the financial affairs of a small airline with the aim of building assets to £30 million in seven years.

Colour, sound, and graphics are combined well to give you the information you need.

However, the program is let down by its limited instructions.

Although there was supposed to be an option to buy and sell aircraft, this never appeared in the games I played.

Profit and loss accounts and balance sheets are produced at great speed, but there is no information on how these figures were derived, or advice on what you are doing wrong.

So, for the business student there is little that might be learnt by playing this game, for those with little business knowledge, then the game will probably just confuse and frustrate you.

instructions	40%
playability	40%
graphics	80%
value for money	30%



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A real brain twister, White Barrows requires both brains and brawn from its players. It's no good just hacking your way through the Barrows and hoping to fall over the Sorcerer. Eventually you'll meet a Dragon, and they don't heck easily! You'll need all your strengths and cunning to survive this one for long.

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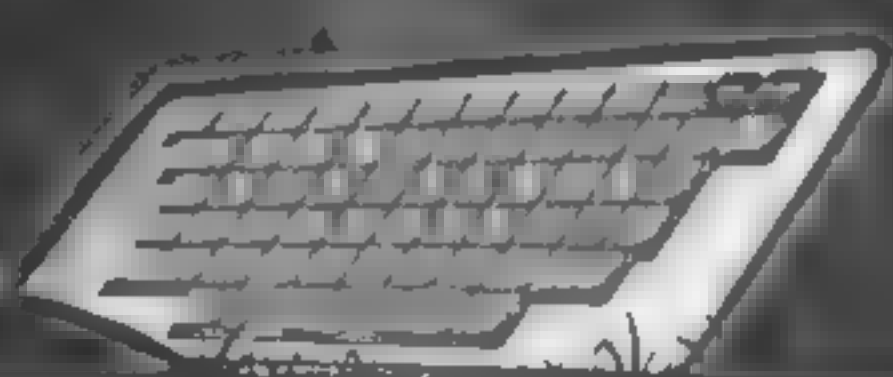
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Top Ten programs for the Dragon 32

- | | | |
|----|------------------------|----------------|
| 1 | The King | Microdeal (1) |
| 2 | Space Wars | Microdeal (3) |
| 3 | Talking Android Attack | Microdeal (2) |
| 4 | Planet Invasion | Microdeal (8) |
| 5 | Nightflight | Sa amander (4) |
| 6 | Katerpillar Attack | Microdeal (7) |
| 7 | Dragon Trek | Sa amander (9) |
| 8 | Madness & Minotaur | Dragon (1) |
| 9 | Chess | Dragon (1) |
| 10 | Dragon Trek | Wintersoft (5) |

Compiled by Boots. Figures in brackets are last week's positions

Top Ten programs for the VIC 20

- | | | |
|----|---------------|----------------|
| 1 | Arcadia | Imagine (1) |
| 2 | Cosmads | Bug Byte (5) |
| 3 | Wacky Waiters | Imagine (3) |
| 4 | Panic | Bug Byte (4) |
| 5 | Asteroids | Bug Byte (2) |
| 6 | Race | Commodore (1) |
| 7 | Amok | Audiogenic (8) |
| 8 | Blitz | Commodore (1) |
| 9 | Alien Blitz | Audiogenic (9) |
| 10 | Kaktus | Audiogenic (7) |

Compiled by Boots. Figures in brackets are last week's positions

Top Ten programs for the Spectrum

- | | | |
|----|---------------------|----------------------|
| 1 | Penetrator | Melbourne House (1) |
| 2 | Transylvania Tower | Richard Shepherd (5) |
| 3 | Jet Pac | Ultimate (2) |
| 4 | Flight Simulator | Psion (3) |
| 5 | The Hobbit | Melbourne House (4) |
| 6 | 3D Tanks | dktronics (8) |
| 7 | Chess | Psion (1) |
| 8 | Starship Enterprise | Siversoft (9) |
| 9 | Ah Diddums | Imagine (8) |
| 10 | Passt | Ultimate (1) |

Compiled by W. H. Smith. Figures in brackets are last week's positions

Top Ten programs for the ZX81

- | | | |
|----|-------------------|-----------------|
| 1 | Flight Simulation | Psion (2) |
| 2 | Football Manager | Addictive (4) |
| 3 | Fantasy Games | Sinclair (3) |
| 4 | Space Raiders | Sinclair (9) |
| 5 | ZX81 Chess | Sinclair (7) |
| 6 | 1K Games | Sinclair (10) |
| 7 | Defender | Quicksilver (6) |
| 8 | 1K Chess | Sinclair (10) |
| 9 | Planet of Death | Sinclair (8) |
| 10 | Scramble | Quicksilver (1) |

Compiled by Boots. Figures in brackets are last week's positions

Rumours hot out of Silicon Valley

The latest hot rumour out of the home computer section of the Silicon Valley is that Atari may be planning to discontinue its 400 and 800 computers in favour of a single low cost model (the 600?), which is rumoured to cost the user about \$160. Nothing from Atari yet to confirm or deny this, let alone any word on whether the predecessor would be compatible with its forerunners. My guess is that it would be sheer stupidity to market an incompatible machine, but we will watch and see.

Micro Software International has just recently released three advanced spreadsheet accounting programs for the Commodore 64 and VIC 20. These are called PractiCalc, PractiCalc Plus, and PractiCalc 64. The programs range in price from about \$40 to \$95, and possess every standard spreadsheet feature except "windowing." Being versatile and affordable, the software house is hoping to give the 64 and 20 a more serious image, thereby expanding the market base of both computers and, obviously, their products.

PractiCalc runs on a VIC 20 with a 16K expansion module. It supports 24 math functions and a BASIC functions. Cells can be formatted, the print sheet can be calculated from any point, and data can be sorted alphabetically or numerically.

The other two versions run on either the 64 or the 20 and offer advanced features. Both are capable of producing low-resolution bar charts (histograms) and can provide some data-base functions as well. The key press turns data from the sheet into a histogram display, any printer driven by the computer can be made to print out either the sheet display or the histograms.

When printing histograms, asterisks are used eliminating the need for a printer with graphics capabilities. The main difference between PractiCalc Plus and PractiCalc 64 is size. The version for the 64 can produce a 250 row by 100 column matrix, the smaller program has roughly one third the capability.

All three programs are available on disc or tape. The documentation seems to be very clear and well written. For more details write to Micro Software International, 50 Teed Drive, Randolph, MA 02633.

Two items of general interest. In the July issue of Radio-Electronics magazine (a very popular American hobbyist mag) there is an excellent article on how to build and implement an 8K non-volatile RAM expansion bus for the Sinclair 1000 (EA 81). The board is designed to be used with a 16K RAM pack to form a 32K system comprised of 16K dynamic RAM, 8K ROM, and 8K of non-volatile RAM.

For the uninitiated, non-volatile means that nothing is lost when the machine is turned off. What it really means is that users can use this device to extend the machine's operating system, giving it many extended capabilities. If you are interested, within the article is a price list and address from which you can order a complete kit which is very reasonably priced. If you cannot locate a copy of Radio-Electronics write to them at 200 Park Avenue South, New York NY 10011.

Another fascinating magazine article can be found in the June issue of Byte magazine which is available in the UK. Written by two gentlemen from Texas Instruments, the subject of the article is the TI 99-2, and covers the development of the computer from its initial conception through prototyping. It is the first time (I believe) that a "high level" magazine, such as BYTE, has covered such a story concerned with a machine retailing for under \$100. This clearly demonstrates the impact that such machines are having on the hobbyists.

See you next week.
Bud Urea
Fairfield California



Brian Howarth — computer adventurer

Mysterious adventures by mail order

Brian Howarth told Dave Carlos how his taste for adventure led him into the software business

A television programme, *The Adventure Game*, can take the credit for Brian Howarth's interest in writing computer adventure games.

He said: "I had been playing *Dungeons and Dragons* for some years, but it wasn't until I saw that programme that I realised the potential for computer moderated adventures.

I went out and bought the only micro I could find (which happened to be a TRS 80) and started to program an adventure in BASIC. Before long, I realised it couldn't be done and had to learn machine code to get all the features I wanted. Some six months — and frustrating — months later, the *Colden Hator* was finished.

Brian sent his first game to MORMERS, which accepted it with only minor cosmetic changes. He said: "They persuaded me to put the ideas into a series like the Scott Adams games which were available in America." And so the *Mysterious Adventures* series was born.

Brian now sells the *Mysterious Adventures* through his company Digital Fantasia, based at 24 Northbreck Road, Blackpool. As well as the mail-order software sales, he has a software shop with stock of a vast range of machines and not just adventure games.

Brian's family and friends make up the rest of the company. His sister-in-law Sue Brockhouse does the administration, and his mother-in-law Jean Brockhouse looks after the shop. One friend helps with the programming while another produces the artwork.

Although all the adventures so far have been written within the company, Brian is interested in seeing other people's work too.

He's also keen to set up a club to help and encourage adventure game writers and players.

Some of them seem to need encouragement. During my visit to Digital Fantasia there were several phone calls from frustrated players stuck down caves or on top of pedestals.

Brian said: "We have stopped using the advice sheets with each game now, as some people read them before starting and

spoiled the game. But they are freely available to those who want them.

He even claims to have saved the sales of the *Mysterious Adventures* by offering a range of advice sheets. We put him in touch with a leading adventure writer, who said: "I've written a game which I thought was a bit hard, but I had been up on a mountain for weeks and he was going mad."

Brian believes adventuring is just coming of age, and that he said and he grew from target companies reflect this.

He said: "Space invaders is turning some people off, and they are looking for mind

expanding games which require more than a usual device. There is also a growing interest overseas. Canadian and Australian companies have made applications and a series is now available in the States.

The range of machines for which the *Mysterious Adventures* are available is staggering. The series is available on TRS 80 models I and II, Commodore, BBC, Atari 400 and 800, VIC 20 and in the very near future, Spectrum and perhaps ZX81. The *One and Dragon* may follow. These are all marketed by Digital Fantasia though some are with specialist software houses.

Brian said: "The Spectrum versions will contain high-resolution graphics drawn by a professional artist, as an addition to the written description.

This seems to be what the new market wants but they must not be at the expense of the plot. Most people will still like to make up the images in their heads just as if reading a book. Due to the variation in the quality of television, it is important to have the words too so there is no ambiguity.

Another new feature will be the full sentence decoding of the user's input. This means that instead of using the unnatural verb-noun commands of most adventures one will be able to type real English, and the program will try to sort out what is required.

When I'm writing an adventure the title comes first and I know that to suggest images. Brian said: "The difficult part is to find the objective of the game. Then one has to build a logical set of circumstances around the objective.

For example, the objective is to rescue the professor. Why is he in need of rescue? Who is holding him captive? Once these questions have been answered and the story can start. I do research the stories to some extent too. You can't make up all your own rules and some natural laws will need to be obeyed.

Looking to the future, Brian believes that advances in virtual reality are the most vital to his skill. "If we could get machines with huge memory capability, the possibilities are boundless.

There could then be true role-playing adventures, multi-player games — with cheap communication devices — speech recognition and synthesis — all areas in which we have interests and hopes to work even closer.

Brian has no time for his own adventuring any more despite an unfinished campaign. He admits to playing the odd computer adventure though.

After being asked for his autograph at an exhibition recently it is obvious that he is responsible for many happy hours spent by others too.

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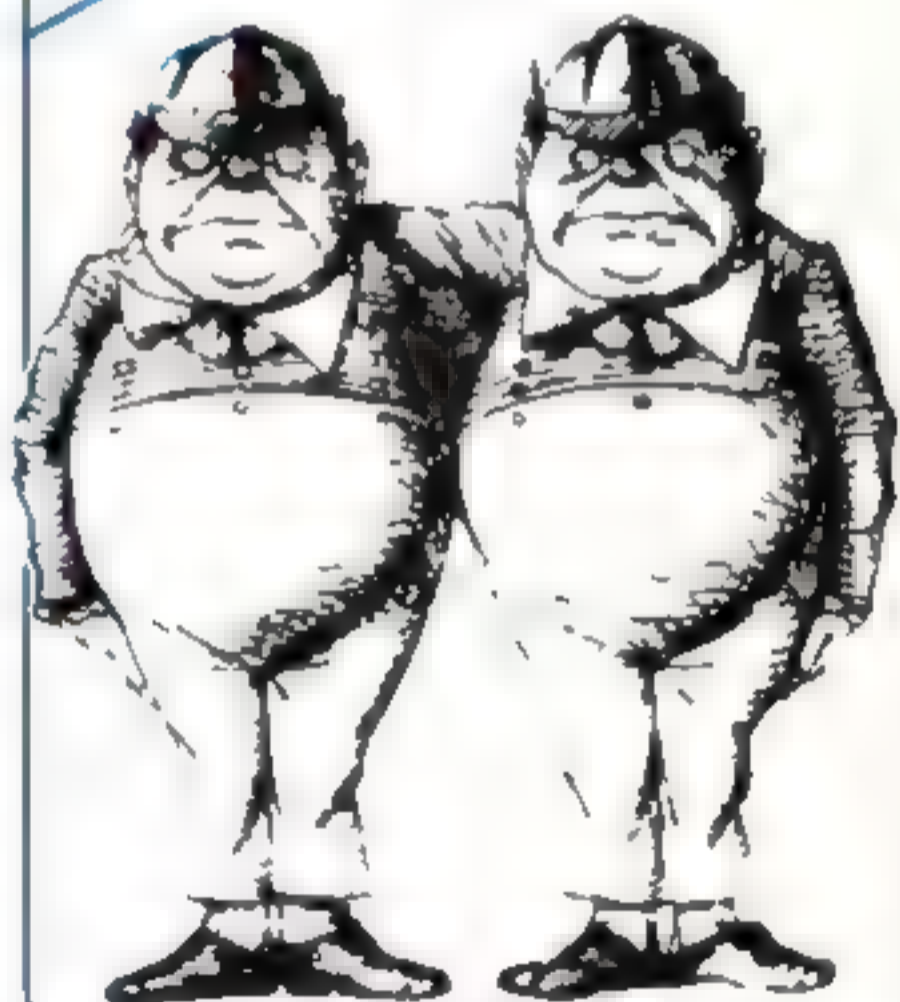
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Here's your key to keyboard competence

The Spectrum keyboard is adequate for "two-finger" touch typing and with this in mind I decided to write a typing tutor which would improve my dread "one-finger" style.

I decided the program would need an accurate check on the precise word minus calculation so as to indicate whether progress was being made.

In addition simple entry of different texts would be needed to allow the beginner to progress from a few simple words to a complete keyboard layout.

The number of characters typed would be logged and displayed.

When RUN you will be asked whether you want to enter new text or use the pre-programmed text which will be displayed on the screen.

If you select pre-programmed text the exercise starts immediately after you type ENTER so be ready.

The aim is now to position your fingers in the correct manner on the keyboard and watch the screen only. Do not look at the real keyboard or your fingers. Look at the screen representation of the keyboard if you need it.

The area picture you are now looking at is shown in the screen picture. The cursor is pointing at the first letter to be typed (the capital) T. You will need the shift key to enter this.

The program produces a beep if you have hit the correct key and a wrong beep if you're wrong. A sound effect of the correct key strikes the text sensibly and phonetically to help you repeat the exercise.

If you're a one-finger typist then you need Mike Biddell's typing tutor, which will work on both models of the Spectrum. It will teach you the keyboard as well as improving your speed



Using the keyboard - model Suevic Dobson, 19

Variables	
NS	choice of pre-programmed or new text
TS	practice text
FNXII	time since switch on, in seconds
sec 1	time typing started (seconds)
T	position in text marker
C	correct number of keys hit counter
R	length of text
M	mistakes counter
L	code of keyboard stroke
sec 2	time typing finished (seconds)

```

10 POKE 23569,255
11 POKE 23561,255
12 POKE 23552,255
50 PRINT INK 1;"NEW or PREPROG
RAMMED text? (ENTER N or P)
"
52 INPUT S$
53 IF S$="N" THEN GO TO 50
54 LET T$="The quick brown fox
jumped over the lazy dog."
55 GO TO 120
60 INPUT INK 2;"Enter new te
xt... " LINE T$
120 CLS
125 DEF FN X(I)=INT (165536+PEEK
23674+256*PEEK 23673+PEEK
23672
I/50)
    
```

area of the screen.

As you type to at least 1 character at the end of a line press the space key quickly hit the ENTER key again and you will be told how accurate you are.

- Line 125 - 22 spaces between beeps.
- The POKES at lines 10-12 make the keyboard beep and also increase system variables REPDEL and REPPER so that a correct stroke is not deleted (see page 73 of the Sinclair Manual).
- FN X() in lines 125 and 300 makes use of the three TV frame bits of system variable 23672-23674. The number of the bit hit will always vary over about 256 days after the start of 1982.

Line 300 gives you a choice of using pre-programmed text or a new text.

How it works

10 POKES system variable PIP, to make keyboard beep

11-12 POKE system variables REPDEL and REPPER, to prevent auto repeat, since auto repeat is not desirable with a typing tutor

50-54 allow you to input your own text or use pre-programmed text in line 54

120 looks complicated, but simply defines a time function based on the Spectrum internal clock as held in the three-byte system variable FRAMES

126 gives sec 1 the value of this function just as you start typing and similarly line 300 gives sec 2, the time value when you finish typing. The difference between sec 1 and sec 2 is therefore the elapsed time in seconds.

130-200 graphic screen display. 200 creates a one line window on the text T and line 1000, by incrementing T, creates a scrolling effect for the window

205 tests for incorrect keystroke and calls subroutine at 2000 if one is detected

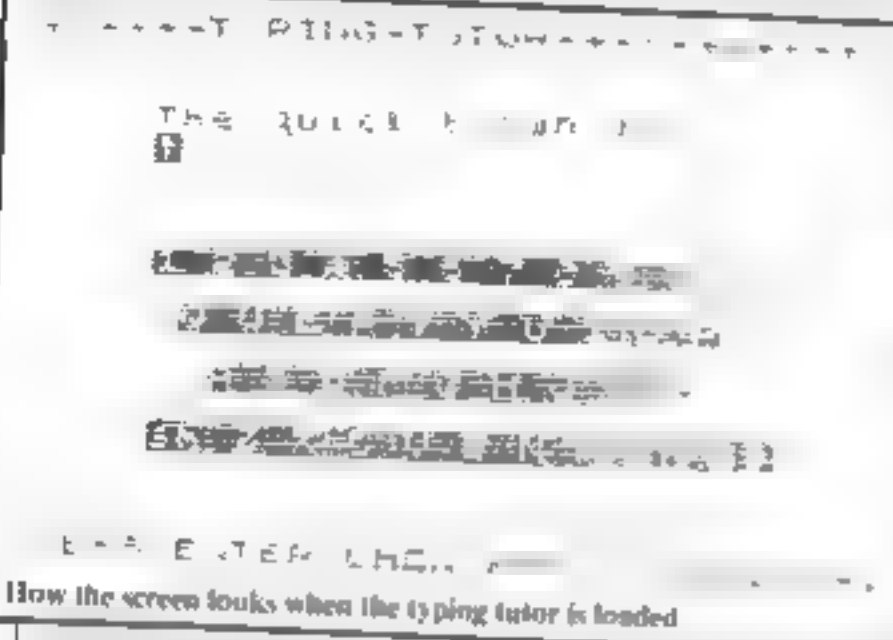
210 detects correct key strokes and calls subroutine at 1000

Finally, hitting ENTER causes a jump to 300 where accurate typing speed is calculated by line 300, and errors are reported by line 304

SPECTRUM PROGRAM

```

125 LET sec1=FN X()
130 PRINT FLASH 1; INK 1, "*****
* TYPING-TUTOR *****
140 PRINT AT 10,5; INK 1, "INVER
SERIAL 1, "1 2 3 4 5 6 7 8 9 0
150 PRINT AT 10,6; INK 1, "INVER
SERIAL 1, "Q U E R T Y U I O P
160 PRINT AT 14,7; INK 2, "INVER
SERIAL 1, "A S D F G H J K L
170 PRINT AT 10,8; INK 2, "INVER
SERIAL 2, "S H Z X C V B N M $ % ^ & *
175 PRINT AT 20,8; FLASH 1, "PRE
ENTER WHEN PRACTICE OVER."
178 PRINT AT 0,8; INK 3, "INVERS
E 1, "
180 LET t=1
181 LET c=0
182 LET r=LEN t$
183 LET t$=t$+" "
100 LET b=0
200 PRINT AT 5,5; INK 7; PAPER
SERIAL 1, (t TO (t+20))
201 LET i=CODE INKEY$
202 IF i=0 THEN GO TO 200
203 IF i=13 THEN GO TO 3000
204 PRINT AT 7,14; INVERSE 1, IN
KEY$
205 IF i<<CODE 1011 TO 1) THEN
GO SUB 2000
210 IF INKEY$=(1011 TO 1) THEN G
O SUB 1000
220 GO TO 200
1000 LET t=t+1
1001 LET c=c+1
1002 BEEP .1,40
1010 IF t>r THEN LET t=1
1020 RETURN
2000 LET b=b+1; PRINT AT 7,20; "E
rror$="B",-10
2010 BEEP .1,-10
2020 RETURN
3000 DEF FN X()=INT (100000*PEEK
23674+256*PEEK 23673+PEEK 23672
)/60)
3010 LET sec2=FN X()
3020 LET sec=sec2-sec1
3030 CLS
3040 PRINT INK 1, "Typing speed="
INT ((c/B)/((sec+.3+(c+B))/60))
" words per minute"
3050 PRINT
3060 PRINT INK 1; "YOU MADE "B,"
mistakes"
3070 PAUSE 400
3080 RUN
    
```



How the screen looks when the typing tutor is loaded

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Inter-Planetary Trader Dragon 32 £5.95

Bamby Software, Leverburgh, Isle of Harris PA83 3TX

Inter-Planetary Trader is a textual fix from one planet to another buying and selling cargo. It could be a very nice romp but inevitably there are hazards. Now, I found these a bit too severe. Maybe I was unlucky but I was killed off far too often.

The problem is that evasive action is hardly within your control: the outcome is decided by the computer equivalent of a dice throw.

After all if you've sweated studying the market, buying and selling carefully it seems hardly fair to be wiped out so casually. At least if you were sent to jail you could buy yourself out. Death can be fatal!

instructions	80%
playability	70%
graphics	70%
value for money	80%



Galaxy Attack 48K Spectrum £5.95

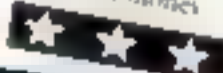
Sunshine Books, Hobhouse Court, 19 Whincomb Street, London WC2 2HF

Galaxy Attack is three space adventure games in one. First you fly into space to attack a Yuggian invasion fleet homing on Earth. At six minutes you crash land on a distant planet to make repairs, meanwhile fending off the unfriendly local robots. If you survive into space again to track in on the enemy mothership and launch a neutron torpedo into her vitals.

On wading you get a nice title tune and some instructions, with the use of 10 keys which are also given in a keyboard cut-out printed on the insert—a real idea. The instructions are not particularly clear, though.

Each phase is timed to six minutes; however, well you are doing, and it would be nice to be able to skip direct to the later ones without wading all the way through.

instructions	80%
playability	80%
graphics	80%
value for money	80%



The Wizard Warriors 48K Spectrum £4.95

Abersoft, 7 Maes Afallen, Bow Street, Dyfed SA24 5BA

The review copy proved difficult to load, but this should not deter you from a well-written graphics adventure.

Once you start your quest at the highest crypt level you will understand why. In addition to the wizard, invisible warriors are his invisible defenders, whom progress you may only follow on your radar except for their fleeting

moments of materialisation. You may survive one level but can you descend and cope with the multiplying hordes, visible and invisible? Can you deal with the ultimate confrontations of the Eagle (500 pts) or the wizard himself (2000 pts)?

Destroying his minions with your tact will earn between 100 and 500 pts per man. Some might argue that it is just a variation on the usual graphics mazes — if so it is with a difference.

instructions	80%
playability	80%
graphics	80%
value for money	80%



Leopard Lord 48K Spectrum £9.95

Rayde, The Longe Great Yarnmouth, Sutton, N.K.W.I.P.

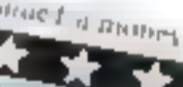
This is a 40-room adventure in BASIC, with purely textual display. The plot is quite good, though perhaps rather limited in scope, but the text lacks sure the imagination.

The use of BASIC means that responses are somewhat slow and the player has to spell everything out in full, where other adventures allow a facsimile to mean (i) NORTH. A particular irritation is that here only one chance in 64 is

getting anywhere, use of the initial moves, most of which leave the current location unchanged.

The vocabulary is low, uses 17 verbs and 54 nouns, and there is a basic three-word format. This means that some commands have to be abbreviated for exact placement where the form (Go X to Y) is necessary. There are a few textual errors, but only one is serious. This gives the word MIRROR for which would be

instructions	70%
playability	60%
graphics	70%
value for money	50%



Death Satellite Oric-1 £6.90

A & F, 130 Hyde Road, Gorton, Manchester M18 7JD

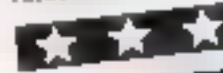
To succeed, a role-playing game must convince you that you're there that it's you boldly going and generally wad-bucking. If it fails in this respect it can fail completely.

Death Satellite sails near to the wind but gets away with it. It's not that the game is boring, it's just the vocabulary seems to be very limited. It would have been nice if HELP could have suggested a few words to get me started. I also found the micr-

prefer a bit of the periodic state. This apart, the game poses some challenging problems in an interesting scenario. The response time was fast, hanging about waiting for responses.

To summarise, the game is awkward to start with but becomes quite absorbing once you know enough of the vocabulary to do things. With a little more work this could become a very good adventure.

instructions	80%
playability	80%
graphics	80%
value for money	80%



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DRAGON TI-99/4A for SPECTRUM 48

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ALONE AT SEA FOR THE TI99/4A

Try and escape the sinking ship, but don't forget your supplies which are hidden somewhere. **£6.50**

K 64

A mind-bender. Cover the squares once only using the knight and its rook moves. Easy? **£8.50**

MYSTERY MANOR FOR THE SPECTRUM

Find the murderer before he (or she) finds you and your career as Detective Solvit! **£8.50**

MASTER CODE FOR THE SPECTRUM

Based on the famous game. Try your skill against the computer. You CAN beat it. **£6.50**

All available immediately from Bamby Software, Leverburgh, Isle of Harris PA83 3TX. Includes our no quibble guarantee. Access orders welcome by mail or telephone 085982 313. Dealer Enquiries Welcome and 48 hour delivery.

LETTERS

Send your letter to Letters, Home Computing Weekly, 145 Charing Cross Road, London WC2H 0EE. Don't forget to name your computer — the best letter could win £5 worth of software. Queries cannot be answered on this page

After-sales letdown

Recently I sent my Spectrum off to Sinclair Research to get the memory upgraded to 48k.

At first I was a little hesitant about sending it off after waiting 13 weeks for it to be delivered in the first place. But after seeing in a magazine that the company had been cautioned by the Advertising Standards Authority, I decided to give them one more chance.

I sent my Spectrum off on May 23. In the letter Sinclair promised a "10-day turnaround" so I expected to get it back within three weeks at most.

A fortnight came and went and a few days later I rang Sinclair Research who told me that it had not yet returned from the upgrading factory. I got my Spectrum back nearly four weeks after I had sent it off.

What's more, Sinclair promised a free cassette, so I chose Flight Simulation. But when I opened the box, no cassette, and the box had been broken.

And there was more to come. When I looked at the Spectrum, there was a gap in the case and when I opened it up I saw that the heat sink had been put in wrongly so that a corner was poking out.

This meant that the case could only be screwed back together with great difficulty and wobbled.

I think it is a shame that after producing two great computers, Sinclair can't find the skill or the common sense to give a good after-sales service.

Stephen Russell, Solihull, West Midlands

Bill Nichols, of Sinclair Research, said, "What we promise is a 10-day turnaround from receipt to despatch — we can't vouch for how long things will take in the post. So just under four weeks for Mr Russell to get his Spectrum

back sounds fair enough.

If there's a technical fault in a machine that's been upgraded it should be sent back to us and we'll sort it out. Call Camberley first on 01 233 9649 and we'll send off labels to cover the cost of postage."

You can dodge by joystick, too

I was delighted to see that you had included a review of our game Dodger in HCW 17. However the review states that a joystick version of the game is not available.

This is in fact incorrect — the version you had for review was a keyboard version, but we have a joystick version too.

It is up to the purchaser to decide when buying. Grant Shapps, Managing Director, Fleety, London W1

Aw shucks, it was nothing

I am writing to thank you for helping me to get my One-Forth cassette from One Products. I wrote to you about four weeks ago to say that I had not received the promised Forth cassette.

Subsequently I had a letter from One Products' public relations agency, apologising for the delay and enclosing a second copy of the Welcome to One cassette (which I had been unable to load).

This second cassette loaded without difficulty, and I now have the Forth cassette which also loads quite reliably. So I would like to say a big thank you to Home Computing Weekly. D. Hazel, Southsea, Hants

Disc break for Light Cycle

Marc Freebury's excellent Atari game Light Cycle (HCW 16) is fast, furious and addictive. But it doesn't work on a disc system since it places the character set in the DOS memory.

To allow it to work on a 48K disc system, I have placed the character set in page 128. I did this as follows:

In line 220, alter 7168 to 32768 and 28 to 128.

In line 230, change 7192 to 32792.

It should then work properly with a disc.

Jan Stringer, Welling, Kent

Brain Trainer has a brainstorm

With regard to my program published in Issue 19, Brain Trainers for you ZX Micro, a rampant bug seems to have absconded with part of the program, namely check and end routines 900 and 910. Both Mathspeak and Quiz need these routines.

Further, lines 10 to 40 inclusive from Mathspeak need to be included in Quiz.

The idea was to demonstrate how programs could be built up

around existing routines and subroutines. Lines 0-40 are in the basic routines, and subroutines 900 and 910 are all-purpose checking and ending subroutines.

I would also be pleased if you would mention that although I submitted these programs, they were developed by my pupils in the Penryn Mead School Computer Club, Minehead. Ray Elder, Minehead, Somerset

```
9000 LET G=G+1
9010 PRINT AT 8,8,AS," IS "
9020 IF AS<>"9" THEN GOTO 9060
9030 PRINT "CORRECT "
9040 LET S=S+1
9050 GOTO 9070
9060 PRINT "WRONG "
9070 PRINT N$
9080 FOR I=1 TO 50
9090 NEXT I
9100 CLS
9110 RETURN
9120 CLS
9130 PRINT AT 8,8,"YOU SCORED ";
S
9140 PRINT AT 8,8;"PRESS NEWLINE
FOR ANOTHER GO."
9150 IF CODE INKEY#<>110 THEN GO
TO 9100
9160 LET G=0
9170 LET S=0
9180 CLS
9190 RETURN
```


Are you brave enough to rescue the damsel from Kong?

Kong is at the top of a tower with a damsel in his clutches — and you're the hero she's depending on.

In my game for the 16K ZX81 there's only one route to the top: along the ground floor, up a flight of stairs, along the next floor to a second set of stairs and finally, along the last floor.

Then, with any luck, you'll rescue the woman and unfurl a flag to herald your success to the waiting crowd below.

Kong will do his best to thwart you (" by rolling barrels (O) and hurling fireballs (X) at you. And the higher you go, the faster the obstacles come at you.

Your score points in your rescue attempt are as follows:

One point: move right or left without being hit.

Five points: jump over an obstacle.

Ten points: climb stairs to a higher floor.

1,000 points: rescue the woman.

Your ever-increasing score will be displayed in the top left-hand corner of the screen.

These keys control your movement:

- M left
- Full stop right
- A up
- Z jump

Hints on conversion

This program will run on both the ZX81 16K and the Spectrum, but better graphics are available on the Spectrum.

Also, as BASIC commands are used, conversion to other computers should be straightforward.

Now's your chance to be a hero as you avoid hurtling barrels and deadly fireballs in Conrad Jagger's game for the 16K ZX81



Jessica Lange in the ape's clutches in the latest version of King Kong.

How it works

- 1-40 set up variables
- 70-100 set up screen
- 117-118 set up two more variables
- 120-140 set up more of the screen
- 145 GOTO 4000 if man reaches top
- 150 allows man to move if moving keys are pressed
- 160 man's score
- 170-180 puts in moving obstacles if moving keys are pressed
- 190 checks for man crashing
- 191-194 works out speed of barrels
- 200-240 move barrels
- 1000-1050 make man climb, add on score etc.
- 1000-1010 check whether man is at ladder
- 1020 adds 10 points to score
- 1030-1045 does actual climbing
- 2000-2050 make man jump and add on score
- 3000-3020 does man crashing
- 3001-3002 put blank space over old barrels
- 3500-3000 scan keyboard to see if any keys pressed and if so game starts again
- 4000-4000 add 1000 points to score and show moving flag
- 4010 puts blank space over old man
- 4020 renews level man and barrels are on
- 4030 gives man new position
- 4040-4040 clear screen and start another sheet

Variables

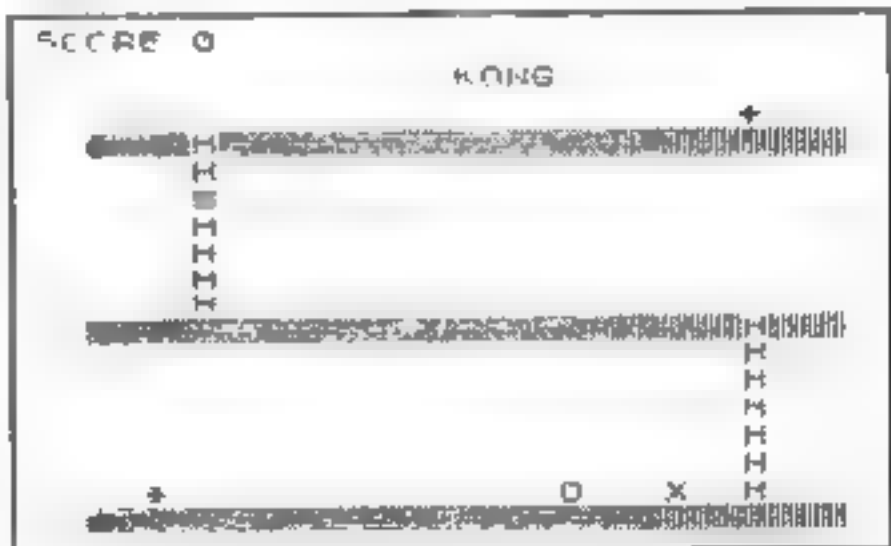
- SC score amount of points player has
- A level of building that man is on
- BA A position of Barrel 1 (O)
- X A position of Barrel 2 (X)
- L A position of ladders
- M A position of Man (you)
- Z difficulty of speed of game in the jumps (FOR and NEXT)

```

10 LET SC=0
20 LET A=19
25 CLS
30 LET BA=20
40 LET M=3
50 LET X=INT (RND*10)+BA
60 IF BA=X OR X+1=BA OR BA+1=X
THEN GOTO 50
70 PRINT AT 3,10, "KONG"
80 LET Z=1
90 LET K=27
100 PRINT AT 20,0, "SCORE: SC"
101 PRINT AT 19,0, " "
102 PRINT AT 12,0, " "
103 PRINT AT 8,0, " "
104 PRINT AT 6,0, " "
110 PRINT AT 13,0, " "
111 PRINT AT 13,0, " "
115 IF A=12 THEN LET Z=2
116 PRINT AT 8,27, " "
117 LET L=6
118 IF A=5 THEN LET Z=3
120 FOR N=A TO 13 STEP -1
130 PRINT AT N,K;"H"
135 PRINT AT L,6;"H"
137 LET L=L+1
140 NEXT N
145 IF A=5 AND M=27 THEN GOTO 4
000
    
```

```

150 LET M=M-(INKEY$="M")+ (INKEY$=
$=)
160 IF INKEY$(">") THEN LET SC=SC
C+1
165 PRINT AT 3,27, "+"
170 IF INKEY$="Z" THEN GOSUB 20
00
180 IF INKEY$="A" THEN GOSUB 10
00
    
```



ZX81 PROGRAM

```

1190 IF M+1=5A OR M+1=X OR M+1<E
1191 THEN
1192   PRINT AT A,B
1193   THEN PRINT AT A,B
1194   THEN PRINT AT A,B
1195   THEN LET BA=30
1196   THEN LET X=30
1197   THEN LET Y=6
1198   THEN RETURN
1199
1200
1201
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1212
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1299
1300

```

```

1035 LET A=A-1
1040 PRINT AT A,M+1, " ", AT A+1,X
1045 H
1050 NEXT N
1055 PRINT
1060 PRINT AT A,M+1, " ", AT A-1,M
1065 PRINT AT A-1,M+1, " ", AT A-1,M
1070 PRINT M=M+2
1075 PRINT AT A,M+1, " ", AT A-1,M+1
1080 PRINT AT A,M+1, " ", AT A-1,M+1
1085 IF M+1=5A OR M+1=X OR M+1<E
1090 THEN
1091   PRINT SUB=5000
1092   PRINT AT A,M+1
1093   IF M+1=5A THEN PRINT AT A,B
1094   IF M+1=X THEN PRINT AT A,C
1095   FOR N=0 TO 10
1096     PRINT AT A,M+1, " ", AT A,M+1
1097     NEXT N
1098     PRINT AT A,M+1, " ", AT A,M+1
1099     PRINT AT A,M+1, " ", AT A,M+1
1100     PRINT AT A,M+1, " ", AT A,M+1
1101     PRINT AT A,M+1, " ", AT A,M+1
1102     PRINT AT A,M+1, " ", AT A,M+1
1103     PRINT AT A,M+1, " ", AT A,M+1
1104     PRINT AT A,M+1, " ", AT A,M+1
1105     PRINT AT A,M+1, " ", AT A,M+1
1106     PRINT AT A,M+1, " ", AT A,M+1
1107     PRINT AT A,M+1, " ", AT A,M+1
1108     PRINT AT A,M+1, " ", AT A,M+1
1109     PRINT AT A,M+1, " ", AT A,M+1
1110     PRINT AT A,M+1, " ", AT A,M+1
1111     PRINT AT A,M+1, " ", AT A,M+1
1112     PRINT AT A,M+1, " ", AT A,M+1
1113     PRINT AT A,M+1, " ", AT A,M+1
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1119     PRINT AT A,M+1, " ", AT A,M+1
1120     PRINT AT A,M+1, " ", AT A,M+1
1121     PRINT AT A,M+1, " ", AT A,M+1
1122     PRINT AT A,M+1, " ", AT A,M+1
1123     PRINT AT A,M+1, " ", AT A,M+1
1124     PRINT AT A,M+1, " ", AT A,M+1
1125     PRINT AT A,M+1, " ", AT A,M+1
1126     PRINT AT A,M+1, " ", AT A,M+1
1127     PRINT AT A,M+1, " ", AT A,M+1
1128     PRINT AT A,M+1, " ", AT A,M+1
1129     PRINT AT A,M+1, " ", AT A,M+1
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1290     PRINT AT A,M+1, " ", AT A,M+1
1291     PRINT AT A,M+1, " ", AT A,M+1
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1293     PRINT AT A,M+1, " ", AT A,M+1
1294     PRINT AT A,M+1, " ", AT A,M+1
1295     PRINT AT A,M+1, " ", AT A,M+1
1296     PRINT AT A,M+1, " ", AT A,M+1
1297     PRINT AT A,M+1, " ", AT A,M+1
1298     PRINT AT A,M+1, " ", AT A,M+1
1299     PRINT AT A,M+1, " ", AT A,M+1
1300     PRINT AT A,M+1, " ", AT A,M+1

```



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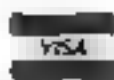
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